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GLEANNINGS

IN BEE CULTURE

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THE GLEANINGS OF **BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. \$1.00 PER YEAR MEDINA, OHIO.

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A CORRECTION. I said, p. 406, that in my locality, when practicing the Sibbald non-swarming plan, the bees may be counted on to swarm later on "in most cases." I should have said "in many cases."

NO ONE has done so much harm to the market for extracted honey as bee-keepers themselves—those who have put unripe honey on the market. Yes, I know that is not an original remark. E. D. Townsend said practically the same thing, p. 416, and others have said it; but it needs to be said a good many times.

HONEY-DEW may possibly, says Professor Cook, p. 408, be better for bees than something else, because it needs no digestion. Allow a layman to suggest, in a humble way, that doubts arise. Isn't the bee built to do a certain amount of digesting, and better for the work if not overtasked in that direction? Protest has been made against the idea of overdoing the matter of providing predigested food for the human stomach.

ALLOW ME to endorse the editor's word, p. 420, "an eight-frame hive should not be contracted at all," and in one respect neither should any other. To the beginner let me say, "Don't expect good section work over dummies outside the brood-frames. If your happiness depends on getting in a few dummies—if you really feel you must do it—don't put them at the side, but in the middle of the brood-chamber. Of course I'm speaking of harvest time."

IF THAT ARTICLE by Clericus, p. 421, is to serve as a sort of primer to the uninitiated, would it not be well to say that the average

life of a worker during the working season is six weeks rather than five? [In some cases six weeks will be too short, and in other cases five would be too long a period. If tall grass and weeds are allowed to grow in front of the entrances, the wear on the wings will be more rapid. It is the wings that wear out, not the whole bee.—ED.]

HARRY STEVENS wants to know, p. 431, whether it's piping or quahking he'll hear the evening before an after-swarm issues. Both. It is just possible that there might be only a single queen in the hive, and she might quahk while in the cell, and pipe after emerging; but if you don't hear a free queen piping and one or several quahkers responding, you needn't expect an after-swarm. First time you hear the noises you'll have no trouble distinguishing them. Your after-swarm four to six days after the prime swarm was because wet weather or something else delayed the issuing of the prime swarm. That, of course, did not delay the maturing of the young queens. You want to know how to prevent excessive swarming. Doesn't Mr. Doolittle's article that you're talking about tell that nicely?

"IT IS HARD for me to explain why any one should desire to use Hoffman frames with long top-bars," quoth ye editor, p. 429. I wish, first time you have a chance, Mr. Editor, you would get one of those men who have tried short top-bars, and don't like them, to open a hive and explain the thing to you. I think you'd understand it. I think that you'd find that the objection is that one end of the top-bar drops down inside the rabbet, and you wouldn't like that yourself. Possibly I'm mistaken; and if there is any objection besides the end of the top-bar dropping down, will some objector please tell us what it is? Of course, with exact measurements nothing of that kind should take place, and it would take a lot of money to get me to go back to long top-bars. [But I have talked with some of those who advocate the long top-bars. As you say, the objection is given because the frames

drop down between the rabbets. But would the objection be a valid one if hives and frames be made to fit as they should and as they do fit in all the factory-made equipment? Others have urged that they wanted the long ears for the purpose of handling frames during extracting; but I never handle by the ears, but grab the frames just inside of the end-bars, where I can get a good firm hold.—ED.]

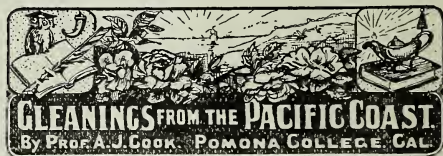
SO A SCRAMBLE is to be made for laurels in the Sibbald non-swarming plan, p. 408. Let me put in my bid with the rest. Please turn, Mr. Editor, to p. 163, "Forty Years Among the Bees," where the "put-up" plan varies by having hive No. 1 set on top instead of at the side. It has the advantage that the bees are sure to go where you want them. [You have about as good a claim as some of the others to priority, and in saying this I do not mean to convey the impression that the other claims are not good. A correspondent may be confused, though, as to which plan presented elsewhere in these columns, under the discussion of the various modified Sibbald plans, is best. Each one will have to do a little studying for himself, and then select the one which to him presents the least difficulty for accomplishing the result desired.—ED.]

TO THE CHARGE which you mention, Mr. Editor, p. 412, that dealers' catalogs are all printed on the same type, you reply by asking why the Root Co.'s dealers' should not be. But the charge was that *all* dealers' catalogs were printed on the same type, and to that you make no reply. Why, for instance, if the charge be true, should the Lewis Co. have catalogs printed on the same type as the Root Co.? [Of course, it is not true that *all* dealers' catalogs are printed on the same type. I had not noticed the statement before, but it is about as accurate as some of the other statements made by the same correspondent. Each of the manufacturers prints his own catalogs. Some of them furnish their dealers with catalogs printed on the same type or plates as the catalogs they use themselves. This is all perfectly legitimate and proper, and is the plan pursued by all reputable manufacturers in other lines of goods to a very great extent.—ED.]

BRO. DOOLITTLE has given us some interesting facts in his very readable article, p. 413; but if he means us to understand that $6\frac{1}{2}$ Langstroth frames "are enough to entertain the best queen to her full capacity as to egg-laying," with only the qualification that he's talking to comb-honey producers, and if he means that to apply to my locality, then I demur. I have no doubt that in general a queen with extracting-supers lays more eggs than one with section-supers—not so certain about Bro. Doolittle's theory that she lays more because "there is something about extracting honey that causes the bees to feed the queen, or force her egg-laying powers," etc. To be sure, any excitement in the way of great acquisitions will make

the bees feed the queen; but in a full flow of nectar the bees are already feeding the queen constantly all she can take, and how can they do more? Besides, extracting is not a daily occurrence, and the few times of extracting can hardly affect a fourth of the queen's time of egg-laying. Then how about those who do not extract till the season is over? Surely extracting has nothing to do with the laying of the Dadants' queens till the harvest is gone; and I don't believe the Dadant queens would lay an egg more if the honey were extracted every day, so long as there is a full flow of nectar. Is not the difference rather in the fact that in one case there is plenty of room *ready* for the honey in the upper story, and in the other case they crowd honey into the brood-apartment rather than to get ready fresh room above?

Admitting all possible difference during the harvest, is there any possible difference before supers are given? In a clover region it may happen that not an egg laid after work begins in supers can produce a bee that ever affects the harvest, for the harvest may be over in three weeks; and in general, in this locality, the laying of the queen after storing begins is a very secondary matter compared with the work before that time. Up to the time supers are given I want just as much room for my queens as if I were not a comb-honey producer; and during that preparatory period I should greatly dislike to limit best queens to $6\frac{1}{2}$ or even $10\frac{1}{2}$ frames. Finally, is the capacity of the queen any less in one case than the other, or is it the difference in opportunity?



TELEGONY.

This is the word Herbert Spencer and other scientists use for the theory that impregnation, or mating, imparts traits of the male to the female. To illustrate: A short-horn cow is bred to a Jersey. Ever afterward she has a Jersey taint in her blood; and, though she is delivered of a calf sired by a pure short-horn, Jersey blood may show in this offspring.

The foundation for this belief was laid in some experiments of one Lord Morton, in England, who bred a mare to a zebra, and thus produced a hybrid. He then used a horse for a sire on the same mare, and the colt showed stripes.

TELEGONY WITH CHICKENS AND BEES.

Some of our best and most painstaking breeders of poultry, and of bees as well, claim that telegony holds with these animals no less than with mammals. If this be true, then the mere presence of the sperm-cells

in the oviducts of the hen or in the spermatheca of the queen-bee has the effect of changing their blood. If as Burbank, the great plant-breeder of California, claims, the scion modifies the stock into which it is grafted, then we should hesitate to affirm that telegony might not be true in case there is experimental proof of the fact. I must say that I was skeptical, not only as to its truth among birds and bees, but, also, with mammals. I wondered if somebody had not blundered.

EXPERIMENTS WITH FOWLS.

I secured two breeds of fowls—Light Brahmas and Brown Leghorns. These are very different. The one lays brown eggs; the other, white ones; the first are white with feathered legs, which last feature holds with great dilution of blood. The others are brown, with clean legs, and very different from the quiet tractable Brahmas in their nervous irritability. I kept all together over winter, and saw them mate each with the other, repeatedly. In the spring I put Brahmas in one breeding-yard and Leghorns in another; and after three weeks of separation not a chicken from the eggs in either lot showed any signs of taint at all. No Leghorn had a sign of a feather striping her legs. This, though I hatched over 200 chickens. Do our readers wonder that my doubts of the truth of telegony with birds was greatly increased?

TELEGONY WITH BEES.

With the queen-bee the sperm is always in the spermatheca during her entire life; and if there is a subtle way for influence to escape and impress, there would seem to be an opportunity. With bees, too, because of the law of parthenogenesis, it is easy to experiment on a large scale if we can only be sure that our queens are purely mated. To be sure of this last, I secured a Syrian queen, one of the first imported by Mr. Jones. Of course, she was certainly of unmixed blood, and she was as surely mated to a Syrian drone. I bred numerous queens from her, but was careful that no drones were produced. These young queens were all mated to Italian drones. From these queens I raised hundreds of drones. As the drones are agamic, or the result of parthenogenetic reproduction, they were pure Syrians; and if there was any show of Italian blood it must be because of telegony. The Syrian drones are very different from Italians in markings. I examined most carefully hundreds—yes, thousands—of these drones, and in not a single case did I note any mark or sign of Italian taint. All these drones from the cross-mated Syrian queens were apparently absolutely pure. Do any of our readers wonder that I was stronger than ever in my belief that telegony did not prevail with bees? I fully believe that, if the queen shows taint in her drone progeny, she was already tainted, and it is not because she is mated with an impure drone that her blood is untrue.

WITH MAMMALS.

I took pains to visit the great exposition at Chicago while the mules were being exhibited. I took occasion to inquire of the extensive breeders. Those who are breeding mules have a fine opportunity to note the presence or probability of the truth of telegony. They breed mules, and often, afterward, colts from the same mares. Here the tendency to long ears would be quick indication of the truth of telegony; yet every one with whom I conversed said he had no faith whatever in the theory of telegony.

Quite recently Prof. Ewart, of Edinburg, Scotland, has repeated the experiments of Lord Morton. He used a quagga—a kind of zebra—and mares. He says that his researches give no sure proof of the truth of telegony. Moreover, he says, granting the facts as stated by Lord Morton, "And yet we can not affirm that telegony is proved." He says that colts from mares that have never been bred to zebra or quagga show often as obvious stripes as those shown by the colts bred by Lord Morton. We see, then, that telegony fails all along the line. The strong probability then is, that, in all cases where telegony has seemed to be proved, the facts could be explained either by taint in the blood of the female or else by the principle of atavism. This last is the explanation offered by Prof. Ewart, of the stripes which showed in the colts bred by Lord Morton.

The practical importance of this refutation is apparent. We suffer the misfortune, through an accident, of having a valuable short-horn or other animal mate with a sire of another breed. If telegony is true she is greatly injured, and can never again be regarded as a pure short-horn. We now know that she is all right, and that we lose only in the one offspring. In case of our fowls, if telegony is true any case of impure mating taints the hens, and they are for ever after of impure blood. We now would regard them just as good and just as pure, even though they had mated in the past with cocks of other breeds, and know that eggs laid after three weeks separation from any but cocks of the same blood will surely give offspring that is as pure as the hen that lays the eggs.



ORANGE HONEY.

Yes, we have it. It is very white, and of exquisite flavor. We should expect from the wonderfully delicious scent that now fills the air in all our citrus regions that this would be true; yet orange honey will never have any commercial importance any more than will that from fruit in the East. It is not that the nectar is not abundant. It is often very plenteous; but the bees at this early season are few in numbers, and so they gather but little, and that goes mostly for the daily needs. I wish, however, that all our friends could now ride with me through the valleys of our beautiful Southland. Yes—

terday I rode from Pasadena to this place, La Conyada. The green of the hills, the bloom of the fields and roadsides, and the profusion of orange-blossoms that whiten the rich green of the orange-trees and fill the whole atmosphere with their exquisite perfume, are entrancing. One rejoices that he lives in this favored clime, and hymns a song of praise and thanksgiving that he is permitted to live in not only the best but the most beautiful country that the sun shines on in all its round.

THE PHACELIA.

The wild flowers are very abundant this season. They are very early, and already the ground is carpeted with most varied and abundant bloom. Among these are the phacelias, which are already attracting the bees. We have several species of this genus. The flowers are scorpioid—that is, the seed-spikes twist and greatly resemble worms or caterpillars. I often see bees thick upon these phacelias, and have no doubt that they contribute not a little to the coffers of the bee-keeper.

THE GILIOS.

We also have a wealth of gilios among our wild bloom. These are the spring beauties of California. There are many species and of many colors, from deepest blue to brightest pink. The bees like them, and often are hardly less numerous than are the flowers. A very interesting feature of these gilios and some others of this family (*Polemonaceæ*) is the bright-blue pollen. This deep blue of the anthers makes the flowers most attractive; and the bees, as they bear their double load of pollen of brightest blue to their hives, are really striking in appearance.



The season in Texas is very late this year, but the prospects for a good honey crop are quite promising. Abundant rains have fallen throughout the winter months, and a good season is in the ground. With these conditions honey-yielding bloom in abundance is assured unless some unforeseen calamity intervenes.

A "brick of honey" is standing up well in Texas. This "brick" I brought with me on my return to the South, simply carrying it in one of my grips. It has gone through all kinds of weather and through temperatures ranging from below zero up to 95°. The weather here has been ranging between 65

and 85 since I came home, and the honey is just as it was when it was first put up in December.

IN TEXAS AGAIN.

March 20 I bade good by to the North and landed in the sunny South a few days later. It was for the first time that I noticed the great difference between the North and the South. In Ohio, cold weather, snow and ice, winter clothes, overcoats, and gloves were still "in season." Arrived at San Antonio, Texas, it seemed as if summer had already made its appearance. The weather was warm, flowers were in bloom, and bees and birds were in the air. Straw hats and shirt-waists made quite a contrast indeed to our heavy winter clothes which we had not yet a chance to change.

All this made me feel still more sorry for Dr. Miller, who, you will remember, enjoys himself in his shirtsleeves *inside* a warm and comfortable home, with the mercury outside shivering around and below zero, while the Southerners are enjoying the *outside* with all its glorious beauty of nature.

ITALIANS AND FOUL BROOD.

Samuel Simmins, page 178, champions Italianizing as a cure for foul brood, and he gives some evidence that causes one to ask further questions. Such questions have been asked of me, and I hardly know what to answer. There is no doubt that Italian blood would help a great deal, but it is too much of a homeopathic dose for eradicating the disease. Better use severer methods, and eradicate it quicker and more surely. Italian and other good races will keep freer from contagion, and battle with disease longer, than blacks or other inferior races, but it hardly seems probable that Italians would resist foul brood altogether.

Mr. Simmins says, "If one deliberately infects a colony of bees, nothing can prevent them from having the disease, no matter what the race; but here is the gist of the whole matter: The blacks do not attempt to subdue it; the others do—so much so that, for a long time, the inexperienced eye would detect nothing the matter with the combs, while a favorable season or a little judicious assistance would enable them to eradicate it entirely."

It seems to me that their foul brood might be of a milder form than the dreaded disease we have in America. We Southerners would like to have a little more information on this subject. Although we have only a very few localities in Texas where foul brood exists, we are taking every caution to prevent its spread.

WINTER LOSSES IN TEXAS.

A large number of bee-keepers in Southwest Texas have suffered from winter losses, some of them quite heavily. The cause was too close "robbing" last fall. When the last surplus honey was taken off

it was expected that the colonies would store sufficient for winter from late fall flowers. These failed to yield on account of the dry fall, and the bees were left short of stores. The bee-keeper, not examining his bees, was unaware of the fact, and the result was a lot of dead colonies in the spring. Some lost as many as half of their bees. A little more attention and care, and a little feeding would have meant money in the bee-keeper's pocket. It does not pay to take honey too closely in the fall, and to trust too much in a late fall flow for winter stores. My advice has always been against such practice.

In some localities the bees had enough stores to carry them through an average winter. The past one was a very severe winter, however, and it lasted so long that the stores were soon consumed. To this might be added the lateness of the spring, which prevented the bees from getting new stores.

My own loss was 6 out of 250 colonies, and those were either weak or queenless colonies the fall before, except one which had a bad case of paralysis. Nearly all of the others came through with a surplus of 10 to 30 pounds of stores, and all of them strong and in fine condition. A good deal of this honey was left on the hives in shallow extracting-supers.

BRICK HONEY IN THE SOUTH.

My opinion is that the brick-honey industry can be developed here in the South quite profitably, although it did not seem so at first. Well-ripened honey granulates solid during our winters, and some of our honeys granulate soon after being taken off the hives early in the season. With the assistance of cold storage or a refrigerator, no doubt the candying could be hastened, and result in a more solid cake for cutting into bricks. Once put up in the smaller packages it would stand up longer, and there would be little danger during the cooler months. When warm weather sets in, the bricks might be placed in cold storage as are other things. If this can be done there is no reason why such goods must be sold out before warm weather comes. Neither will the bee-keeper be compelled to take any unsold brick honey off the dealers' hands at that time. This would apply to the North the same as to the South.

It would be well worth trying some experiments along this line. If the bricks can be kept in a cool place and taken out as needed when sold to the customer, such honey could be kept on the market the year round.

A cake which I have here now has withstood as high a temperature as 95° during the day, without being affected. Of course, the nights were quite cool. This would go to show that a very low temperature is not necessary in the cold storage. If the honey will remain firm in a cool room the problem will be solved. The room must be cool and

dry. None of the honey need be kept on display in a warm store where it might melt down, daub shelves and counters, and attract flies. Large printed placards would remind the consumer that a stock of the honey is kept on hand.

THE TEXAS FOUL-BROOD LAW.

Almost every State where bee-keeping is carried on to any extent is interested in foul-brood legislation, either for the eradication of the disease or to prevent the introduction of it into the State. Here in Texas only a few localities have been troubled with this disease; and where the bee-keepers have taken hold of the matter the disease has been stamped out. This interest on the part of the bee-keepers does not always prevail, however, and nothing but the most stringent measures will bring about any results in eradicating foul brood when it has taken a foothold. For this reason a foul-brood law is needed.

We have such a law here; and as many of the Texas readers of GLEANINGS have asked me in regard to it I will give it place here. I would urge all of our bee-keepers of Texas to give it a careful study.

TEXAS FOUL-BROOD LAW.

HOUSE BILL NO. 293.

AN ACT to provide for the protection of honey-bees against foul brood and other contagious diseases, and providing that all bee-keepers report to the State Entomologist when infectious diseases exist; providing for collecting the expense of eradicating the disease, and fixing the charges upon the owner of the bees; providing for the extermination of all contagious diseases; and providing penalties for the violation of this Act.

SEC. 1.—*Be it enacted by the Legislature of the State of Texas*, if any owner of or any person having control or possession of any honey-bees in this State, knows that any bees so owned or controlled are affected with foul brood or any other contagious disease, it shall be and hereby is made his duty to report at once said fact to the State Entomologist, setting out in his report all the facts known with reference to said infection. The State Entomologist shall have full power in his discretion to order any owner or possessor of bees dwelling in hives without movable frames, or not permitting of ready examination, to transfer such bees to a movable-frame hive within a specified time. In default of such transfer the State Entomologist may destroy, or order destroyed, such hives, together with the honey, combs, frames, and bees contained therein without recompense to the owner, lessee, or agent thereof.

SEC. 2.—The State Entomologist shall prescribe such rules as may in his judgment seem necessary for the eradication of all contagious diseases of bees; and if at any time the Entomologist finds, or has reason to believe, that the owner or keeper of any bees, or the owner of any apiary, has refused, or is refusing to comply with all or part of any such regulations, then and in that event the State Entomologist is hereby authorized to inspect said bees, and, if necessary, burn diseased colonies, appliances, and honey, and do any and all things necessary in the premises to eradicate foul brood or any other infectious disease of bees.

SEC. 3.—When any owner or possessor of bees shall fail to carry out the instructions of the State Entomologist, as set forth in Sections 1 and 2 of this Act, the State Entomologist shall carry out such destruction or treatment, and shall present to the owner of said bees a bill for the actual cost of such destruction or treatment. In the failure of the owner or possessor of such bees to pay said bill within thirty days after the delivery of the same to himself, tenant, or agent, or within thirty days after mailing the same to his usual postoffice address, the State Entomologist shall certify to the County Attorney of the county wherein such bees are located, the amount and items of said bill, and the County Attorney shall file suit for the recovery of said

account. All moneys recovered by the County Attorney for such destruction or treatment shall be paid into the hands of the County Treasurer, to become a part of the fund for the carrying-out of the provisions of this Act.

SEC. 4.—If any owner or keeper of any diseased colonies of bees shall barter or give away any infected bees, honey, or appliances, or shall expose any other bees to the danger of infection of the disease, or shall refuse or neglect to make report as provided in Section 1 of this Act, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not exceeding two hundred dollars.

SEC. 5.—The fact that the season when young colonies of bees will leave the mother colonies is near at hand, that there is no existing law properly governing colonies affected with foul brood, creates an emergency and an imperative public necessity, requiring the suspension of the constitutional rule which requires bills to be read on three several days, and the same is so suspended; and this Act shall take effect and be in force from and after its passage; and it is so enacted.

PAT M. NEFF, Speaker House of Rep.
GEO. D. NEAL, President Senate.

Author, Hon. Hal Sevier.

Passed House, March 20, 1903; ayes, 112; nays, 0.

Passed Senate, March 30, 1903; ayes, 25; nays, 0.

It will be noticed that the matter is placed entirely in the hands of the State Entomologist, with full power to act upon the measure. We are very anxious to keep the State free from this dread disease; and while this law may not be as efficient as it might be it will help much. More will be said about this matter later.



THE early spring which seemed to be so propitious along in March is going to prove to be a late one in most localities. So far as we can gather from reports, bees have gone through the spring well, although brood-rearing has not progressed as rapidly as it has done at other times. At this writing, April 28, the weather is opening up very fine, and the bees are busy bringing in pollen.

DISTINGUISHED VISITORS AT MEDINA.

WE have just had the pleasure of a visit, although a short one, from Mr. and Mrs. Thos. Wm. Cowan, of the *British Bee Journal*. They were on their way to their residence in California, from which they have been absent for some time.

Mr. Cowan needs almost no introduction to the readers of GLEANINGS. He is the inventor of the Cowan honey-extractor, and various other devices. Besides being the editor of the *British Bee Journal*, and Chairman of the British Bee-keepers' Association, he is the author of the "British Bee-keeper's Guide," of which 40,000 copies have been printed in English alone. Not only this, it has been published in *eight dif-*

ferent languages. Notwithstanding our A B C book has had a larger aggregate sale in English, yet Mr. Cowan's Guide has the honor of being the *only* bee-book that is almost world-wide in its influence.

Mr. Cowan is also the author of a beautiful scientific work on "The Honey Bee." This has gone through two editions, and, besides, is also printed in two or three different languages. Mr. Cowan is, without doubt, not only the most widely known bee-keeper, but the best-posted man on both scientific and practical apiculture in the world. Knowing this, American bee-keepers will always be glad to do him honor.

COUNTER-ARTICLES VS. DIRECT RETRACTIONS OF COMB-HONEY LIES.

MR. W. A. SELSER, partly under the direction of The A. I. Root Co. and partly under that of the Honey-producers' League, has been writing various articles on honey as a food, particularly on the general subject of comb honey and the impossibility of its manufacture. He has interviewed quite a number of publishers and editors, and in most cases he has been fairly successful, either in securing direct retractions or counter-articles giving the truth about honey.

Mr. Selser remarks in one of his late letters that publishers do not like to admit that they have published an untruth in their columns, because they don't like to confess to having published nonsense or a lie. But it is often very easy to get them to accept a counter-article that does not in any way refer to the first one, but which gives the facts from the standpoint of the bee-keeper. Mr. Selser thinks (and I believe properly) that sometimes it is not wise to give prominence to the original untruth by even mentioning it—that it is often best to ignore it entirely, and then give a readable article which the publisher will be in duty bound to accept and place before his readers as prominently as possible.

SOME CORRECTIONS ON THE SWARTHMORE METHODS; THE SIBBALD NON-SWARMING PLAN NOT NEW.

THE following letter, received from Mr. E. L. Pratt, will explain itself:

"I wish to thank you for your kind criticism of the 'baby' and Swarthmore methods in general, given on page 361; there is one or perhaps two points in need of immediate correction in your report, however, lest bee-keepers make a failure of introducing the virgins and condemn the plan. I refer to the number of hours to elapse before the virgins are run in. In your report you say wait from 12 to 24 hours, which is entirely too long. In my book I set 8 hours as the limit of time. Virgins should be run *directly* into the boxes within 6 to 8 hours. If you wait 24, many will be lost. You recommend that the beginner, 'to be on the safe side,' use an introducing-cage. In doing this the chances are even greater for serious loss of virgin queens at making-up time. When the nuclei are established, however, the introducing-cage is necessary, or other means of protecting a queen from being balled.

You will pardon me for the suggestion, but I feel that success in the use of mating-boxes will be materially aided by making these corrections at once. Do not in any event, recommend caging the virgins when first making up the boxes, for many will be lost and the plan will be condemned.

In your last note on "Wintering Baby Nuclei" you say, "While that might be done in the mild climate of Philadelphia, it would *not* do at all in a colder climate." Our winters for the past two years have been quite as cold as yours, and it is my belief that, if these boxes will winter here, they will winter in Medina. I have a report from a gentleman in England who has succeeded in wintering his boxes on T's in open ground, with no special preparation. Other bee-keepers were asked to try the experiment, but are yet to be heard from.

The "Sibbald" non-swarming plan, mentioned from the *Review*, has been used by us for several seasons in our work at queen-rearing; and by reference to our circulars you will see that this was published by us long ago, and is quite satisfactory. It has been a part of the Swarthmore method of cell-getting for the past three years, and is also fully explained in the little book, "Cell Getting," now about ready for mailing.

E. L. PRATT.

I still think that baby nuclei could not be wintered here in Medina, for we can not winter even full colonies in single-walled hives outdoors with any degree of success. By looking up the isothermal lines of average temperatures for the United States I find that Philadelphia has the same temperature as Frankfort, Ky., or St. Louis, Mo. The former is 258 miles south of us, and the winters there are nothing what they are here. You may have as cold days in Philadelphia as we have here; but it is not so much extreme cold as it is long-continued moderate cold that has to do with the wintering problem.

The basic principles of the Sibbald non-swarming plan, as you will see by references elsewhere, are not new. But none of the other plans so far given are exactly the same as the Sibbald.

A GOVERNMENT BEE-BOOK FOR FREE DISTRIBUTION.

FARMERS' BULLETIN No. 59, "Bee-keeping, by Frank Benton, in Charge of Apicultural Investigation," will shortly be issued from the Government Printing-office, Washington. I hold in my hands the advance proof pages of the newly revised bulletin. It has considerable new matter, having been increased by one signature from 32 to 48 pages. The edition will consist of 10,000 copies, which will be immediately available for free distribution to applicants in the order in which the requests are received.

By referring to page 3 of the table of contents we find that a number of new subjects have been added, as well as some old subjects that have been considerably revised. All parts of the text which are either new or considerably changed are covered in the following headings:

- Page 8. Overstocking.
- Page 10. Pollination of fruit and seed crops.
- Page 12. Gentle bees.
- Pages 14-17. What race of bees to choose.
- Page 19. Adding shaken bees to swarms.
- Page 21. Shaken or brushed swarms.
- Page 25. Russian or hairy vetch.
- Page 26. Sulla or Sulla clover.
- Page 30. Use of comb foundation, not artificial combs.
- Page 32. Correction of artificial-comb-honey reports.
- Pages 40-41. Utilization of brood, honey, and wax from foul-broody colonies.
- Pages 42-43. Bee paralysis.
- Page 45. Legislation and National Association.
- Page 46. Journals.

I have read quite a number of the changes, and note that they are brought clear up to the times. The general subject-matter, so far as I am able to go over it, seems to be orthodox according to the latest methods and practices.

The matter that interests me particularly, however, are the two emphatic denials, one on p. 32, the other on p. 34, that there is such a thing as manufactured comb honey on the market, or that it is possible to put out such a product. These statements, occurring in a government bulletin just as they do, are authentic, and can not possibly smack of any interest in bee-supplies or of a bee journal. As a natural consequence, when these references are fired at offending editors they will carry weight.

On p. 45 the subject of legislation and the worthiness of the National Bee-keepers' Association are presented in such a way as to enlist the support of bee-keepers in general.

As I understand it, this is only one of several bulletins and pamphlets that will be issued from time to time relating to bee culture; and in this connection I should like to speak of the good work Mr. Benton is doing in silencing these comb-honey lies by writing interesting articles on the general subject of honey, comb honey in particular, and the impossibility of its manufacture as has been so often alleged. A very excellent article of this kind appears in a late number of the *American Agriculturist*. Indeed, the editor having had the question propounded to him as to whether comb honey was manufactured or not, very properly referred this to the Apicultural Expert in Washington, who, in return, wrote a splendid article which was published. Still another article appears in the same publication, by Mr. Benton, on the usefulness of bees in the pollination of plants.

The hearty co-operation of the Apicultural Expert in the government with the new Honey-producers' League already organized will mean much to the bee-keeping interests of the country in showing the uses of honey and killing the old comb-honey canard that has ever and anon been showing its ugly head.

APICULTURAL NOMENCLATURE; SHORT EXPRESSIVE TERMS.

DR. MILLER, in one of his Straws in a late issue, in referring to the Sibbald non-swarming plan, speaks about giving "one brood" to a colony, meaning, of course, one frame of brood. The shorter term is expressive, and would never lead to any confusion, and I would suggest that our correspondents adopt the term. While we are about it, instead of saying "bottom-board" why not say "floor," as proposed by Mr. Pettit? Another expression that has come to be practically universal is "queenless," referring to a colony without a queen. But when we have the opposite condition we have been in the habit of using the circumlocution "a colony with a queen." Mr. Geo. W. Phillips, in his book, "Modern Queen-rearing,"

uses the term "queenright," which is almost as short as "queenless," referring to the opposite condition. If our correspondents will permit us we will shorten these phrases down to some of the terms already suggested.

HOW PURE FOODS ARE PLACED UNDER THE BAN OF DISTRUST.

It has been stated that the average man is more capricious, timid, and more subject to panic over his food and drink than almost any thing else. Some of the late scientific articles for popular reading, while confined very largely to the actual facts, have a tendency to create general distrust in nearly all lines of pure foods that are capable of adulteration. Reputable manufacturers and honest producers over the country generally are beginning to feel the effects of these articles, because they have been copied widely, fearfully distorted, and commented on in the most sensational manner by the average daily press. The consumer reading these distortions will not dare to buy any more canned goods or syrups, much less honey, because this food is reported to be very generally adulterated. The result has been a general "panic" among consumers. Even ripe fruits have been placed under the ban of distrust, because, forsooth, somehow the story got into circulation that a "poisonous fungus" was affecting the cucumbers, and that even tomatoes might cause "locomotor ataxia," and that often heads of lettuce would be the nesting-place of "deadly vipers." The trouble is, it is sometimes wise not to tell the *whole* truth, for the reason that yellow journals desiring something sensational to "fill up space" will take that truth, garble it, and make a mess of lies out of it. That is exactly what they have done regarding honey. There can be no doubt at all that producers of both comb and extracted honey have been heavy sufferers.

FOUL-BROOD LEGISLATION THE PAST WINTER.

ATTEMPTS have been made in the various State legislatures during the past winter and spring to get foul-brood laws in several of the States where the disease exists and is making progress. I have already referred to the bill that passed both houses of the Missouri legislature, but which was finally vetoed by Gov. Folk. This is the first time a foul-brood bill has ever been killed by a governor; and it goes to show the great importance of having the chief executive properly posted as to the nature of such a measure before it goes before him.

I have before me a copy of the recent law that was passed in Kansas, based on what is known as the county plan, a plan that provides for an inspector for each county upon petition of a certain number of bee-keepers. As originally presented it was a much better measure than what actually passed. The salary of the inspector was cut down from \$3.00 to \$2.00 a day, and the number of petitioners was increased from 5 to 25. Each one of those petitioners must

be an actual resident of the county, and a bee-keeper. If there are only a dozen bee-keepers in a county, and the disease is raging in the apiaries of one of them, it would be simply impossible to get an inspector. In this respect the smart legislators pretty nearly (if they did not quite) nullified the law in many, if not a majority of the counties. In other respects the law is very good; but all county laws are inferior to those that give jurisdiction over the whole State to one man who will be something more of an expert than might be picked up in one county. In Kansas, or in fact in any State, it would be hard to find a man for \$2.00 a day who would be willing to leave his bees and incur the possible enmity of some of his neighbor bee-keepers in his efforts to enforce the law. The original draft of the bill provided for \$3.00 a day, and this was somewhat better.

A bill has been presented to the Pennsylvania legislature providing for the appointment, by the governor, for two years, of two inspectors of apiaries, for the whole State, who shall be practical bee-keepers, and who shall be skilled in the knowledge of the disease and its treatment. It further provides that the inspector or inspectors receive \$100 per month. This amount would secure the services of good men. In other respects the bill is an excellent one; and if it finally passes, it goes without saying that the disease will be eradicated in the speediest manner possible. This is in marked contrast with the weak Kansas law.

So far as I know, the following States have foul-brood laws of some sort:

New York, Ohio, Michigan, Illinois, Wisconsin, Texas, Colorado, Kansas, Nebraska, California. Bills are or have been pending in Pennsylvania, New Jersey, Maine, Minnesota, South Dakota, Idaho, Washington.

I should be glad to have both lists corrected by our subscribers. If any of the States where bills have been pending have finally passed laws, will our subscribers in such States notify us? In the last list, some of the legislatures may have adjourned, and with that adjournment have gone all hopes of foul-brood legislation for the present. There may be other States that have presented foul-brood bills, but so far I have not received notice.

THE NON-SWARMING METHODS GIVEN IN THIS ISSUE.

ATTENTION is directed to the various articles on the Sibbald or the modified Sibbald plan of non-swarming, presented in this issue. These various procedures may be somewhat confusing to the beginner; but the practical bee-keeper will be able to sift out which method or combination of methods will give him the best results. The essential principle of all the plans is the catching of flying bees by jumping a pair of hives over their neighbor, putting it on top, moving it at right angles to it, and a few feet away, or moving it away entirely. *Take your choice.*



THE HERSHISER NON-SWARMING SYSTEM FOR OR WITHOUT INCREASE.

How it Resembles the Sibbald Non-swarming Plan; their Points of Difference Explained.

BY O. L. HERSHISER.

Referring to your editorial discussion of what you have styled "The Sibbald Non-swarming Plan for Increase," pp. 358, 359, it seems to be unnecessary for you to admit that Editor Hutchinson has made a "good scoop," inasmuch as you published in your journal for May 15, 1903, p. 435, one of my series of articles on comb-honey production, which contained a description of my non-swarming system, which is practically the same as the one described by Mr. Sibbald. In fact, the essential distinguishing features and manipulations described by him are identical with those advised by me, and the points wherein he slightly departs from my system are immaterial; and right here it may be observed that all scientific apiarists make proper exceptions to general rules to meet the peculiar local conditions. The differences between my system and what he has described are:

1. He waits until queen-cells are started before making the shift, the supers being on the hives prior to the manipulations, requiring the removal of the super and an examination of the combs to discover whether or not there are queen-cells present. I build up my colonies to great strength by the use of double brood-chambers, which, with plenty of good stores, proceeds much more rapidly than with the single story, and make the first shift when both brood-bodies are full of bees, and just a short while prior to the time when they would swarm naturally, at which time there will be no chilling of brood as a result of the division. This period varies in different localities and with different seasons. With well-wintered colonies and in a favorable season the first shift might be made in apple-bloom time, in apple-growing localities, especially if the interim between apple-bloom and white clover affords a continuous light flow of honey. It is unnecessary to make an examination for queen-cells when the proper time arrives for making the division.

2. When Mr. Sibbald makes the first shift, in taking the frame of brood from the parent colony he must make sure, by examination, that the queen is left therein. That can be done only by searching until you find her; otherwise you are not sure that you will leave her in the parent colony. By my

method I drive her into the lower brood-body with a few puffs of smoke, and, as I've never known a failure to accomplish this desired result by this method, I think it may safely be styled infallible. Thus no tedious search for the queen is necessary.

3. Another inconsequential difference is that, at the time when honey commences to be brought in rapidly, and after about all the brood has emerged from the combs in the upper brood-body, I drive or shake the bees into the lower body, at which time I substitute the first comb-honey super for the upper brood-body, using the latter for an extracting-super for this lower brood-body which has been removed.

In conducting an apiary for both comb and extracted honey the system has the merit of obtaining the largest possible yield; and the comb honey is especially fancy, as the sections are not put on until the honey-flow is near or quite at hand; hence they will not be propolized so much as they would be if left on the hive a great length of time.

My non-swarming system, as announced nearly two years ago, is superior to the same as modified by Mr. Sibbald, just in proportion to the time saved in not being obliged to make examinations to ascertain if queen-cells are present; the time and annoyance saved in not being obliged to hunt for and find the queen, when making the first shift, to be sure she is left in the parent colony; and the great advantage in having the very strong colony by reason of the use of a double brood-body, giving every facility for rapid breeding during the fore part of the season to supply a multitude of field workers for the season when they will be of the greatest use to us.

Those who are opposed to shaking at all times need not do so by my system. When substituting the super for the upper brood-body, drive the bees and queen into the lower brood-body with a few puffs of smoke. The field bees remaining in such upper story, after it is placed on the parent hive, will return to the hive under preparation for comb-honey production.

My comb-honey colonies being supplied with young queens just at the opening of the main honey-flow, reared in the same colony, together with a brood-chamber supplied with narrow strips of comb made from starters, offers a practical safeguard against swarming. These narrow strips of comb in the brood-chamber keep the pollen from going into the sections.

The preferable way of supplying young queens to the new colonies is to rear queen-cells from our choicest stock for this purpose, thus improving the whole apiary, and getting the queens to the laying age at the season best suited for this system. As the object of this system is to prevent swarming, it is inadvisable to unite the old colony with the old queen to the new one. If that is done there would be the likelihood of a return of the impulse to swarm, especially in a long-continued honey-flow, by reason of the presence of the old queen.

The other manipulations described by Mr. Sibbald are surprisingly identical in substance with mine. I refer particularly to the scheme of removing the parent colony from side to opposite side of the old or to a new stand in order to augment the field-working force of the comb-honey colony. The basic principle of this non-swarming system announced by him being the same as the one announced by me in GLEANINGS, as above stated, it will be seen that he has been anticipated by nearly two years in its announcement; and that the "scoop" is clearly on the other fellow will be readily seen when the description of my system, developed and used by me, and published in 1903, is read in connection with this and your recent editorial discussion of the same.

The practice of this system in the production of extracted honey is especially advantageous, whether increase is desired or not. After the first shift of the lower brood-body and queen to one side, and the substitution of the brood-body containing frames with starters therefor, allow it to remain until the new queen has emerged, after which she may be confined below by a queen-excluding honey-board. You will be surprised to see how fast the honey will come into this hive, containing field workers in great numbers and no brood to nurse.

Buffalo, N. Y.

[The two systems of non-swarming, the Sibbald and the Hershiser, are somewhat alike, and I should perhaps have noted the similarity when I described the Sibbald plan in our March 15th issue; but on referring to Mr. Hershiser's article on page 435, May 15th, last year, I see that the plan is somewhat obscured in the mention and discussion of several other plans for getting the colonies in prime condition for comb-honey production; for that was in reality the subject of the article, the plan of non-swarming mentioned being only incidental and a part of a larger system of management. As to who may have priority in having first described the plan under discussion, it is a little difficult to say just now. Several have written that they have tried it and that it is all right. One correspondent in particular (Swarthmore) says he described it in one of his circulars a number of years ago. See his letter in the editorial department of this issue.—Ed.]

IS THE SIBBALD PLAN NEW?

Infinitely Inferior to the Brushed-swarm Plan.
The Chambers Plan of Non-swarming.

BY J. E. CHAMBERS.

In the March *Review*, the article by H. G. Sibbald, entitled "Something that Promises Better than Shook Swarming," was read with interest, but I failed to see any thing of much real value in it. Imagine my surprise to see in GLEANINGS that you think this motherless method likely to prove superior to the brush or shook-swarm plans

that have been tried and found so valuable. But as one long familiar with the latter plan, and by no means a stranger to this old new plan of division, I desire to call your attention to the fact that I described a plan in GLEANINGS for Nov. 15, 1903, much like it, but with this important difference: I drew the working force from two full colonies instead of one; and, instead of a cell due to hatch in perhaps ten days I gave a laying queen from one of the colonies; and, by using two colonies thus, I was often enabled to get both sections and combs partly drawn before the swarming season came on. I also wish to draw your attention to the following points of advantage that this plan offers over the Sibbald method: First, it gives twice the force of workers to begin with, and I claim that this large force will be ample for twenty days, and, if given enough breeding room, will need no reinforcing either by shaking or your jumping process. Second, I claim that, with a laying queen in the hive, there is no desertion after the bees once settle down; but with only a cell and no open brood it goes on continually. Third, a swarm with a laying queen can be trusted to build comb anywhere; but a motherless one, never. Fourth, such a swarm as I have described will store more first-class section honey in ten days than a motherless one will in a month. Fifth, there is no trouble looking to see if queens have mated or got lost, and supplying laying ones to the queenless. Sixth, these big swarms do not get the swarming fever again, for the reason that all have become field bees before there is enough brood to induce swarming again. Seventh, such colonies are in a more natural and favorable condition for the perpetuation of their existence than is a motherless one.

Now with regard to the requeening of colonies when practicing this method, I have told how it was done, in the columns of GLEANINGS, more than once, and it is exactly as you state in your description of the Sibbald method; but I have never claimed that it was new or original; neither is this Sibbald method new or original—that I well know for I have been familiar with it ever since I knew how to draw combs, brood, and cells from colonies preparing to swarm in order to make increase; in fact, the one suggests the other; and if you care to look up my article in GLEANINGS for Nov. 15, 1903, you will see that the Sibbald method is very near what I described there, with the difference that I have already mentioned, and, certainly, I must have known something about it or else I am a fine anticipator. Now, do not understand me to say that I lay the least claim to Mr. Sibbald's method, for I am not that kind; but I do insist that it is infinitely inferior to the brush swarm, for the production of honey; and while it may suit some apiarists in certain localities, yet for the majority it will not prove satisfactory.

In conclusion I will say for the benefit of those who may not be able to refer to

GLEANINGS for a description of the plan I have spoken of, that, briefly stated, it is this: All colonies are arranged in pairs; and if the season is favorable a week or ten days before the swarming season comes on, put a set of frames containing foundation on one of these colonies, and on the other a case of sections. If some honey is coming in these will be partly drawn by the time cells appear. Care must be exercised lest brood be put in the partly worked-out combs. As soon as you are ready, move one of these hives on to a new bottom-board and put the partly drawn comb on the old board, and on this put the case of sections taken from off the other colony. Now close up the hive and look up one of the queens in either of the old hives; shake her and a few bees into the new hive; put the comb back, and move both old hives to new stands. As soon as the old bees have been mostly drawn from the old hives, give the queenless one a young laying queen, and the work is done. But if no increase is wanted, put the queenless one on top of the other. It is not necessary to pay any attention to these young bees for a week; but at the end of that time examine; and if there are any cells, destroy them or brush part of the young bees into working colonies—no jumping, no shaking, no motherless colonies, and only one after-examination, and such a colony for strength!

Vigo, Texas.

[I have looked up the reference given by our correspondent, but discover only one point of similarity between his and the Sibbald plan—namely, the catching of flying bees from other hives. Besides the points of difference he mentions, there is no jumping of one hive over or around the other; but the hives that contain the flying bees are moved entirely away. It is not much wonder that I did not recall the similarity, for they are alike in only one feature.

As to the merits of the Chambers plan, I am of the opinion that the average bee-keeper will succeed better with this than with the other, because the hives that surrender their flying bees to one on the old stand are taken entirely away, thus avoiding any confusion of entrances as might be the case with the Sibbald plan.—ED.]

THE SIBBALD PLAN.

Modified Somewhat by Putting in Three or Four Frames of Brood to Keep the Old Hive from Swarming.

BY J. W. GUYTON.

I will say, Mr. Editor, that I tried the Sibbald plan two years ago and last year, in a modified form however. I put in three and four combs of brood, and as many empty combs as I had, or filled out the complement with foundation starters. My reason for taking three or four combs of brood was to get enough of the young adhering

bees to prevent a swarm from issuing from the old hive. I set the new hive about one foot from the old hive to the side, facing the same way on the stand of the old colony.

I changed the old hive over every week. I made the change about an hour before sunset, so only a few bees would change hives at a time. I did this to prevent the bees from interfering with the queens in either hive. I did not get any more section honey by my plan the first trial, and made a signal failure last season. I think I see my mistake now from your interpretation of Mr. Sibbald's plan. My idea was to make a new colony and to get most of the field bees in the new hive, and to reduce the inclination to swarm. By my plan I succeeded in curtailing the swarming impulse, but I kept the working force balanced after the first week, which was wrong, if I should get section honey in the new hive. I also put a super on the old colony after removing the one that was there first.

Levita, Tex.

EXPERIENCES WITH THE SIBBALD NON-SWARMING METHOD.

Placing the Old Hive behind the New One, with the Entrance Facing the Other Way.

BY HAROLD DAVENES.

I am pleased to be able to give you my experiences during a test of the non-swarming article on page 358 of your paper, having tried the method in the spring of 1902 and 1903. On the stand where No. 1 stood I place No. 2. No. 1 is now put to one side or back of No. 2, at least two feet, with the entrance pointing in the *other* direction. Now from No. 1, if increase is desired, I take two frames of brood and put them in hive No. 2, with two or three frames of foundation and division-boards on the outside. I now cage a young queen just beginning to lay, and place her between the frames. I found in many instances the desire to swarm was not wholly checked in No. 2, the newly made swarm absconding with one of their young queens, leaving a handful of bees in the hive for my trouble. The super of No. 1 is put on No. 2, and the trick is done.

In about three days I move No. 1 up close to No. 2, with the entrance all the time in the other direction to that of No. 2. In about ten days I take two $\frac{3}{4}$ strips and raise the hive-body from the bottom-board of No. 2, making an entrance both back and front of the hive for warm weather. No. 1 is now removed to a new location, the young field workers left behind entering the rear of No. 2. If I were to jump No. 1 over No. 2 the entrance could then be in the same direction as No. 2.

In 1903 I tried this on a few stands. No. 1 was moved to one side as before, giving No. 2 a frame of brood to play with. The

old queen in No. 1 is removed and a young queen just beginning to lay introduced. In a few days, when eggs are found deposited in the brood-cells, No. 1 is put back on the old stand, and the super is replaced, the frame of brood in No. 2 is removed, the bees left in the hive given a jolt and a smoke, and deposited at the entrance of No. 1. Should the bees be vicious I take a sheet of newspaper, punch a few air-holes, take off the cover on the super of No. 1, spreading the paper in place; put on hive-body No. 2 with its bees, and place the cover. The bees eat their way through the paper and find the way to the brood below, and the queen is not disturbed.

Last spring I tried another scheme, and am going to try the method again at some future time.

When the bees were ready for the extracting-super a frame of brood was taken from below, placed in the super with a started queen-cell. A zinc honey-board was put between. In due time the young queen hatched; but if the old queen is not a valuable one the zinc is pulled out. From nearly sixty stands, over eighty per cent of the old queens were dead in front of hives within forty-eight hours.

As the season was a failure in honey-production, I do not call this a fair test. I had no swarming, and extracted this spring over 700 pounds of honey after leaving the supers on the hives all winter.

I may mention the result of the remaining hives in this test. In two cases the queen-cells were torn down, and in the others the young queens were balled. For the short time consumed, this beats all the methods I have ever tried.

I pin all my faith on the young queen, and, if given elbow room, she is not going to leave her new and happy home. I think locations and seasons, and perhaps temperature, may have a great influence on the outcome of these methods.

Sierra Madre, Cal., April 11.

SIBBALD NON-SWARMING PLAN A FINE ONE.

In regard to the article in the *Review*, by Mr. Sibbald, and yours in GLEANINGS on "Something that Promises Better than Shook Swarming," I should like to state that the plan is a fine one, but it is not necessary to wait for queen-cells to be started, but all strong colonies can be treated thus at the beginning of the main honey-flow; and, further, when you move the old colony to one side, turn it with the entrance in the opposite direction for a day or two, as this will keep the field bees from going into the old colony where their queen is, and this is a very important part of the operation.

D. R. KEYES.

Montgomery, Ala., Apr. 4.

[Your last suggestion I believe to be indeed important. Let all those who try the plan take note.—ED.]

THE BIGELOW EDUCATIONAL BEE-HIVE.

The Need of It.

BY EDWARD F. BIGELOW.

Insect Study—Bees in Particular.—It is in the world of insects, vast and varied, its members innumerable, beautiful, and almost miraculous in transformation, that the naturalist revels. The entomologist proclaims the attractions of his favorite pursuit as does no other naturalist, and no other disputes his claim. The most exuberant language fails to do full justice to the subject. Kirby and Spence, years ago, wrote as follows:

"Were a naturalist to announce to the world the discovery of an animal which, for the first five years of its life, existed in the form of a serpent; which then, penetrating into the earth and weaving a shroud of purest silk of the finest texture, contracted itself within this covering into a body without external mouth or limbs, and resembling more than any thing else an Egyptian mummy; and which, lastly, after remaining in this state without food and without motion for three years longer, should, at the end of that period, burst its silken garment, struggle through its earthy covering, and start into day a winged bird—what, think you, would be the sensation excited by this strange piece of intelligence? After the first doubts of its truth were dispelled, what astonishment would succeed!

"But you ask, 'To what do all these improbable suppositions tend?' Simply to arouse your attention to the *metamorphoses* or *transformations* of the insect world, almost as strange and surprising, to which I am now about to direct your view—miracles which, though scarcely surpassed in singularity by all that poets have feigned, and, though actually wrought every day beneath our eyes, are unheeded alike by the ignorant and the learned because of their commonness and the minuteness of the transforming objects."

All this, bear in mind, is in praise of what is already known. Of the charm of discovering these facts, the entomologist James Rennie wrote:

It can never be too strongly impressed upon a mind anxious for the acquisition of knowledge, that the commonest things by which we are surrounded are deserving of minute and careful attention.

If it be granted that making discoveries is one of the most satisfactory of human pleasures, then we may affirm without hesitation that the study of insects is one of the most delightful branches of natural history, for it affords peculiar facilities for its pursuit.

"If you speak of a stone," says St. Basil, one of the Fathers of the church, "if you speak of a fly, a gnat, or a bee, your conversation will be a sort of demonstration of the power of Him whose hand formed them, for the wisdom of the workman is commonly perceived in that which is of little size. He who stretched out the heavens and dug up the bottom of the sea is also He who has pierced a passage through the sting of a bee for the ejection of its poison."

This very large order of animal life, Professor L. O. Howard states, "comprises nearly 30,000 described species; but the enormous number of undescribed species . . . would probably swell this number to more than 300,000."

Of this vast number of insects, the one pre-eminent in human interest is probably the honey-bee. Says Morely, "Both ends of the honey-bee have always been of singular interest to us, and this for exactly opposite reasons. It is a double-ender—one end the friend, the other the enemy of man."

This supreme interest in the bee, Prof. John Comstock expresses less humorously but no less truthfully when he says:

"The honey-bee, through its useful products, has been known and cared for by man for centuries. Philosophers have written about it, poets have sung its praises, and naturalists have studied it during past ages, until there is probably no other insect with which man has such an intimate acquaintance."

In face of this overwhelming interest, the study of the honey-bee, so far as apparatus is concerned, has fared the worst of all at the hands of the scientists or the educational naturalist. They have sold the master study, and relinquished chief title in it for a bag of gold. In the hands of commercialism bees have fared well. Father Langstroth lifted out the honey; Bingham and Root smoked out the bees; Cogshall and Dixie brushed them off; Porter kept them out of their home; Cowan whirled out the liquid honey, and Danzenbaker and others made it convenient to capture comb and all. Alley caught the queens and drones; Doolittle, Miller, and Boardman said, "Let us feed them when they are weak, so that they can work better for us;" Hershiser and Mason bottled the honey, and Sturwold exhibited it to the public, all saying, in effect, "Bring up your money, and eat." Then they all shouted in chorus, "There's money in it! keep bees, and get rich!"

One manufacturer tells of "millions and millions of dollars' worth of honey taken from bees annually;" boasts of a plant with a working capital of \$300,000, and pictures the honey product in the United States every year as "making a solid trainload" fifty miles long. Where, all this time, is the educational naturalist who *loves the bee* as well as its product? Resting quietly, and perfectly willing, apparently, to let commercialism dominate the entire subject.

He will spend his money on elaborate bamboo rods, nickel-plated heads of ingenious devices, with fine-mesh nets for the flying insects, approved drag-nets, and devices for water-insects, elaborate breeding-cages, collecting boxes; plaster of Paris, and glass and other mounts; costly storing-cases, and other elaborate paraphernalia. He will devise ingenious methods for observation of ants as has Comstock, Fielde, and others. But what will he do for the bee, the charm, the supreme interest of entomology? Nothing. No catalogue of entomological supplies with which I am familiar, though picturing a great variety of breeding-cages for other insects, has one word to say in favor of studying bees, or even a device to show for facilitating the investigation of their habits. That has been left to commercialism, and commercialism cares for nothing but the money end of the arrangement.

In a life devoted more or less to the study of bees as a *Nature Study* topic of supreme merit, I have more and more felt the need of an *educational bee-hive*.

This need has presented itself to me in the twofold relation of workmanship and convenience. To remedy this defect I have

devoted all my spare time for several months past. Let us examine these needs.

1. *Workmanship*.—A leading book on *Nature Study* in the schoolroom and home, pictures a clap-trap drygoods-box affair that would not for a moment be tolerated as an apparatus for the study of physics in any laboratory in the land. Even those who cry the loudest for home-made apparatus in physics would not accept such a crude thing as that. A poor farmhouse would demand better workmanship in a box to put behind the stove for holding firewood—it surely would if the photographic illustration does the subject justice. A prominent magazine devoted to life in the country has two or three times pictured arrangements for holding a single frame of bees in a window. If we are to judge from the illustration it must have been the poorest piece of furniture in the house. The tone of the article and the appearance of the illustration convey the impression that the writer felt a pride in the fact that the whole thing was cheap and home-made. But why cheap and home-made? Is the subject unworthy our attention? or is it unworthy our best treatment?

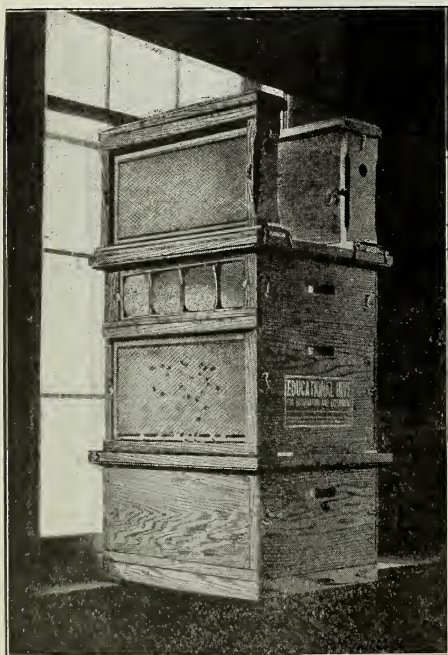
Why does that periodical not publish articles on "How to Make a Dog-kennel out of a Drygoods Box;" "How to Make a Cage for Your Canary out of Old Umbrella Ribs;" "How to Tear up Old Rags into Ribbons for the Neck of your pet Cat"? or—but why argue further? The articles admit the interest in bees as a home ornament. Then why insult the bees with any thing short of *the best*?

In a leading university and in a prominent museum I have seen a crude "observation hive" visited by greater crowds of people than were the show-cases of specimens, and have heard them excite more exclamations of interest and wonder. Yet the glass in one of the doors cost more than the entire hive; indeed, the hives in both places were such ramshackle affairs that an up-to-date bee-keeper would hardly consider them worth a place in his back-yard apiary. The probabilities are that such an apiarist would chop them up for kindling-wood. Yet why this "economy" of the university or the museum? Are not live bees of more interest than pinned beetles or skeletons of muskrats? If they are, give them a "case" at least as good.

2. *Utility and convenience*.—The so-called "observation hive" has consisted of eight or ten frames with glass on both sides, with or without covering doors, exposing usually about two-thirds of one side of the outermost comb. The real work of the bees is on the inner combs; but, waiving that disadvantage, a hive that exposes to observation from one-twelfth to one-fifteenth of its comb surface (the glasses at the end are useless) is not an observation hive; it is an *aggravation* hive.

Another form of so-called "observation hive" has been a simple affair with glass sides for holding one frame of comb temporarily removed from a hive, with the bees

upon it. For temporary exhibition of one comb this has its place; but as an observation hive it is a misnomer and a failure. From their unnatural surroundings, and from the fact that they have no facilities for clustering between protecting combs for warmth, and especially since the bees soon die in it, my opinion is that the contrivance would better be named a tribulation or *devastation* hive. Another apparatus, originating in England, and intended to secure the desired result, has been made of two series of frames with four or five in each vertical row! Could anything be more absurd as a matter of ingenuity, or further removed from the natural condition in the natural hive? I can imagine nothing.



THE BIGELOW EDUCATIONAL HIVE.

These facts, united with the belief that the honey-bees are unexcelled in interest from the nature-study standpoint, have impelled me for months to study the subject, and to plan what now seems to be an ideal educational bee-hive, and I have intrusted its manufacture to The A. I. Root Company, who have had extensive experience in building hives for the honey-gatherer; and who are in full sympathy with the nature-study conditions, and who, furthermore, have unexcelled facilities for fine workmanship. The hive is to be made in finely finished pine, ash, or oak, and glazed in first-quality glass.

The essential feature is an *observation chamber* backed by a force of bees in regular body hive with glass sides.

As the physicist has a battery or motor from which he takes out electricity for such experiments or observations as he may desire to make with special apparatus, so here the bee naturalist is provided with the ability to make observations and experiments.

The chamber is supplied with a padded division-board, which serves to divide it into two hives, and which is also useful as a background for photographing results obtained in either apartment. The bees may be readily isolated as a separate colony in either section for artificial feeding, for rustic comb-building, or for other purposes. The chamber is deeper than the body of the hive, so that the entire extent of the regular frame or other comb-support may be seen or photographed.

Under each half-chamber is an ingenious arrangement of slot and bee-escape. When the thin metal cover is drawn entirely out, bees go in or out freely; when half in, the bees go out only, and the chamber is soon cleared. Push the metal plate entirely in, and the bees go neither in nor out, but may be instantly removed to another hive for experimental purposes. Not a bee can then take flight to freedom, and there is not the slightest possibility of being stung. By using one or both of these sliding covers, the hive is readily made into two or three hives. Holes in the top are supplied with caps and with jar feeders.

Observation Super.—A regular Danzenbaker super with thirty-two four-by-five sections is the third story of the hive. This is supplied with observation sides, which give clear exposure from the top to the bottom of the outer sections.

Removable Hives.—Above this are two traveling hives for temporary exhibition. Bees are let into this by slot and escape device (as is done with each half of the observation chamber), so that bees may be carried from place to place or be used for class exhibition, or for nuclei experiments, and without the slightest danger of loss or injury either to the insects or to the apiarist. Both have the regular mouth opening for use as a single isolated hive. Many experiments that can not be made in the divided observation-chamber can be performed in these removable hives.

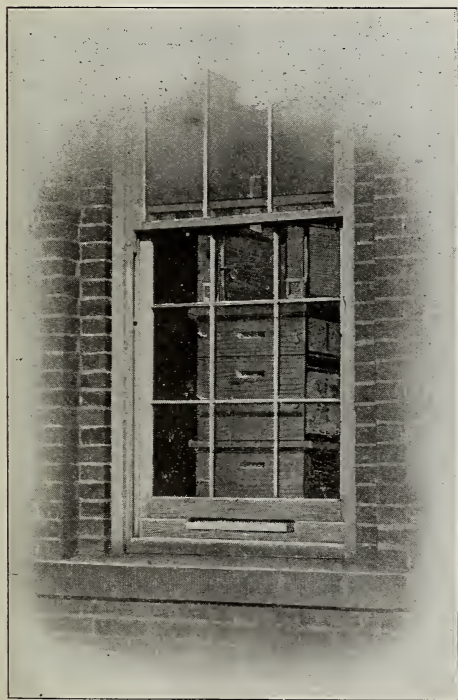
Magnifying Feeder.—This is on the end opposite the mouth of the main hive, and is so arranged that the observer, looking through a powerful lens, faces the window at which the whole hive is located. The top and back of this feeder are of glass. Diluted honey or simple syrup is put in small quantities in a trough one-eighth of an inch wide. Bees stand on an elevated glass shelf, and each one takes the sweets from the narrow space between the two glasses, as it takes the nectar from the flower. Collectively they have the appearance of "feeding at the trough like little pigs."

The powerful lens slides back and forth so as to give a view of any portion of this trough, wherever "the best feeding" is in progress. The lens is set one-eighth out of

center from top to bottom, so that, by turning the supporting-block, a range of adjustment of one-fourth of an inch up or down is given. A delicate focusing adjustment is provided by a screw with a range of three-fourths of an inch. This lens shows the heads and proboscides of the feeding bees in a wonderfully interesting manner.

The bottom of the feeder is provided with slot and slide as an escape device, previously described, and the whole is easily taken from the hive by the slides and carried to a window for closer observation, or it may be passed around to members of a class or to visitors.

Artificial Feeding.—Between this magnifying-feeder and the end of the hive which has the mouth opening there are two jar feeders



MANNER OF SETTING BEFORE A WINDOW, WITH SASH RAISED AND ENTRANCE CUT IN TEMPORARY BAR.

with perforated caps. These are so arranged that one is over each half of the observation chamber. The hive is also provided with a Doolittle division-board feeder that may be placed in the main hive, in either observation chamber, or in the one or two removable hives. From these last the cover may be taken off and the feeder put in without the escape of bees, provided the sliding cover is previously pushed in half way, so that the portable hive is cleared through the Porter escape.

Flying Cage and Observation Box Hive.—This attachment, like the magnifying-feeder,

is not supplied regularly with the hive, but is regarded as an extra. It will be found very serviceable in a variety of experiments. Three sides are of glass. The other has non-rustible wire netting. This netting is placed next to the main hive in place of the tube entrance. A long slot through the lower part of the frame matches the mouth opening of the main hive. The purpose of this flying cage is to provide a place in which the bees may fly when the hive is set up in a room away from a window for observation, instruction, or exhibition. This will be found very serviceable for use at fairs, and for temporary exhibition in schools, also for advertising purposes, and when placed with the entire hive in the show-window of a store.

This cage is hive-size, and takes on the top the regular cover, the feeding-board, with the main hive or supers. At the upper and lower portions are places for feeding. The inside of the hive is regularly fitted with supports for regular frames, or for rustic sticks. In this manner it may be used in imitation of the original bee-trees, the whole being covered with paper, cloth, or other material for making the interior dark. When this covering is removed, the entire inside of the bee-tree with rustic cross-sticks may be readily seen.

When the cage is not thus used in connection with the main hive it is turned around so as to face in the same direction as the other hive, and both are then side by side at the window, with two tube entrances as two separate hives. A large baseboard is provided for the hives when used in combination. This cage is so designed that it may readily serve many other natural-history purposes. It is unexcelled in convenience as a transforming-cage for lepidoptera or for aquatic insects. For the last-mentioned purpose bowls or dishes of water to hold the aquatic specimens are placed in the lower section.

When used as a larval feeding-cage, pots of earth with growing plants, or broken branches placed in bottles of water which are set in the earth in the pots, may be placed in the lower section.

The main hive is fitted with the Danzenbaker entrance-stops. The bottom-board is clamped to the main hive by the Van Deusen live-clamp.

The alighting-boards of the tube entrances take Alley's queen and drone trap, bee-guards, etc. It is recommended that the Root queen-rearing outfit be purchased in connection with the hive.

Another very useful accessory is an observation lens five inches in diameter. This lens, and also that of the magnifying-feeder, are made by The Bausch & Lomb Optical Company, of Rochester, N. Y., and are of the highest type of efficiency and workmanship.

With the complete hive, the magnifying-feeder, the flying-cage, and observation box hive, the Root queen-rearing outfit, and the observation lens, facilities are afforded for every phase of apian observation,

experiment, instruction, pleasure, or exhibition. At last we have an observation hive worthy the subject. The optical parts are by one of the most famous and extensive manufacturers of lenses in the world. The woodwork and bee-appliances are by the largest manufacturing establishment of apianarian apparatus.

I have not tried to produce a cheap or simple hive, but rather one which the bees and their friends have long merited. I am confident that all concerned will be pleased.

Contrary to the advice of many friends who have known of my prolonged study and work on this hive, I have refused to take out a patent. On the contrary, I have arranged with the manufacturers to have the hive and all its accessories placed on the market at the cost of production. Considering the detail and workmanship, I regard the price as barely covering cost of labor and materials. I am confident that the hive-manufacturers must look for profit to the sale of their regular goods to the new converts which I am sure this hive will bring to the fascinating field of apiculture.

Profit and the spirit of commercialism in nowise enter into the production of this hive. I have regarded the labor spent upon it as a labor of love. To my fellow-students and lovers of nature I cordially bestow and heartily commend "The Bigelow Educational Hive." May the study of these wonderful insects afford you as much pleasure and instruction as they have afforded me.

Stamford, Ct.

CO-OPERATIVE ADVERTISING.

BY C. A. HATCH.

[It is but fair to say that the following article was the result of some extended deliberation on the part of Mr. Hatch for some time back. He finally submitted it to manuscript, and the same was received by us just prior to the launching of the Honey-producers' League. We were at once struck by the general similarity of the plan outlined by Mr. Hatch and that evolved by Messrs. York, Hutchinson, and others, and which is now well under way. It only goes to show how different people working at the same problem will sometimes arrive at practically the same solution.—ED.]

With our honey markets depressed, and all the leading market centers overloaded, it is time we looked facts in the face and thought of means of relief. Either there is an overproduction of honey or not enough people are using it to consume our product. When we know that there are thousands of people who do not see honey from one end of the year to the other we think we are safe in assuming that overproduction is not the matter. Then what is the matter with this large non-consuming number? Some do not like honey; others like it but are afraid to buy for fear of getting something impure and adulterated; while others, ignorant of the merits of honey are led to buy glucose mixtures by showy and misleading advertisements; and it is to this class our advertisements should appeal.

IS IT PRACTICAL?

Why not? There are hundreds of papers

that go to thousands of readers every week, day, or month that are just the mediums for such a campaign of useful education. It can be tried experimentally in a daily of some of the smaller cities, at no great cost. Say put half a column or even less in for two weeks and note the result.

THE COST.

Could the National devote its funds to any better purpose? And could there be any better inducement for outsiders to become members than to show results along this line?

HOW DONE.

But some one asks, "How is this to be done? Who is to write these advertisements, and place them?" Have we not men in our own ranks skilled enough in the use of the pen to formulate an advertisement of a pleasing and taking kind? Or a premium might be offered for the best statement of the value of honey as a food in an article of stated length.

ILLUSTRATION.

Pictures might be used to show bees at work, how they pollenize flowers; also to show the interdependence of flowers and bees. These would interest and educate, and thereby overcome prejudice. Then let the reader know where a wholesome article of honey can be obtained by saying the secretary of the National will be pleased to mail him, on request, a list of names of bee-men who have the pure article for sale.

DIFFICULTIES.

Poor honey and good honey poorly handled would be the greatest difficulty in the way of success. In order to have uniformity it might mean that all shall be inspected and graded by a proper officer of the National; and it goes without saying that uniformity of packages would be very desirable.

DISHONESTY.

All men are not honest, and bee-men as a class may be more honest than some others; but there is no use shutting our eyes to the fact that *all* bee-men are not honest, and these are the ones who would make trouble for the society. But if they could not be controlled they could be expelled, and their names dropped from the list of members, so the society would not be held responsible for them.

PRICES.

It might be well to add in this connection that it would, perhaps, be necessary for a committee of the society to name a price for different grades of honey, below which a member could not sell, so that a customer could order of the nearest bee-man to him. Any bee-keeper having sold out would have to send notice to the secretary so his name could be dropped from the list. We would not expect any increase of price at first; but after the demand had grown beyond the supply, then there would be a natural raising of prices.

Richland Center, Wis.

NAIL-SPACED FRAMES.

What is Glucose? How to Detect it in Honey.

BY J. L. HYDE.

On page 1158, Dec. 15, you wonder if the doctor is the only one who uses nail spacers to any extent. I would say that, for the last ten years, I have used no other. They are furniture nails, though, that are cone-shaped, and will drive in just far enough so it makes the spacing the same as the Hoffman. They are too expensive unless you can get them at a bargain somewhere. I bought mine for \$1.00 per 1000 and less at one time. Could not these nails be made of tin instead of brass? or a wire one, made with the same shaped head, of iron or steel? But on the end of the frames, I use, for spacing, blind-staples, which are very small. These drive into wood without splitting, and are just as good to keep the frames from sliding endwise. My frames have the same width bottom as top-bar ($\frac{3}{8}$ inch thick and $1\frac{1}{2}$ wide), and are dovetailed to the end-bars without any projection to the top-bars; so I space them at the bottom on the bottom-bar the same as on the top-bars. My hives are made without rabbets, and have T tins fastened across on the bottom of the hive for the frames to

rest on. These tins should be fastened so as to have the post part up so the frames will rest on the blade only. I can reverse my hive by fastening extra tins on the top of the hive the same as are on the bottom; and after turning my hive over I take off the bottom ones. After once reversing, the bees have the combs fastened so well to the frame that they need no wiring. I have no frames that are wired, and I can throw them about the same as the wired ones; and if I want to move my bees the hives are all ready without fixing them up on the inside. I like the way I have my hives fixed; but there are others, and each one likes his way best.

There are some things I should like to learn from GLEANINGS this winter. One is, to know when honey is adulterated, without studying chemistry. I think a bee-keeper should know all about honey as well as bees. How long does it take each kind of honey to candy? how long does it take glucose to candy? I have some glucose that I have had about five years, and it looks the same as when I first got it—no candying about it. I know it will get hard and flint-like, but I never saw it candy like honey. It may, though, when mixed with honey.

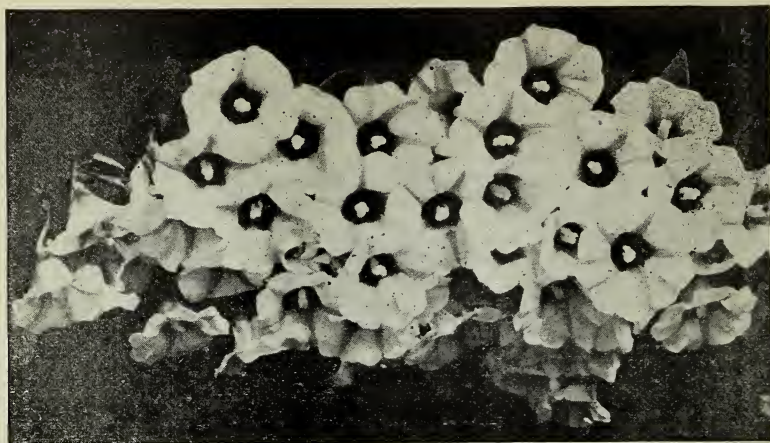
Providence, R. I.

J. L. HYDE.

[I will explain to our readers that Mr. Hyde is one of our old correspondents of



A TRAIL, THROUGH A CUBAN JUNGLE WHEN THE CAMPANILLA BLANCA IS IN BLOOM



THE CAMPANILLA BLANCA, OR WHITE BELLFLOWER.

years ago; but we have not had very much from him of late years.

There are several features about his frame and its adjustment in the hive that are good. It is practically a standing staple-spaced frame, the frames resting on uprights of T tins. This would certainly minimize to the lowest point the smashing of bees and propolis attachments. The only trouble is, frames of this kind would have a tendency to topple over against their neighbors because there would be nothing to hold them together when one is pulled out for examination. I went over this field somewhat myself years ago, and decided against a standing frame unless it were shallow or unless it had some sort of device like the Quinby hook to hold it in an upright position when separated from its fellows.

When I said I wondered if anybody else was using nail spacers like Dr. Miller's I meant the ordinary wire nail. The furniture nail, I well knew, had been used for some years. About ten years ago there was a discussion between Dr. Miller and myself regarding the merits of this particular spacer, and I am not sure but our correspondent Mr. Hyde was at the time one of the advocates of the device.

Chemically, "glucose" comprises quite a group of sugars having the chemical formula of $C^6H^{12}O^6$. When chemists speak of glucose they generally mean it in the broad sense; but in commerce, glucose and grape sugar are known as two different articles, although chemically the same. The former is a thick syrupy liquid, and the latter is a hard dry substance with a fine mealy con-

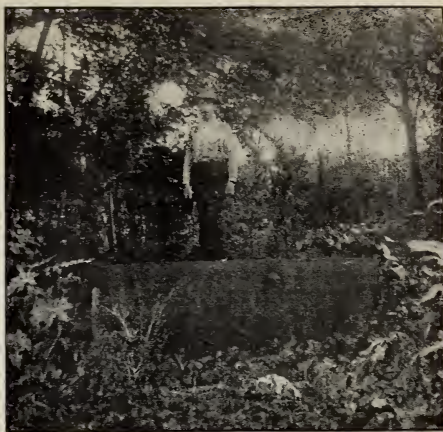


DRYING COFFEE IN SANTIAGO DE CUBA.

sistency, but so hard that it has to be broken up with a hammer. Commercial glucose granulating? I think there must be some mistake. I have always understood that it would remain liquid at ordinary temperatures. Possibly you have in mind grape sugar, which is one of the sugars known under the general head of "glucose" from the standpoint of the chemist.

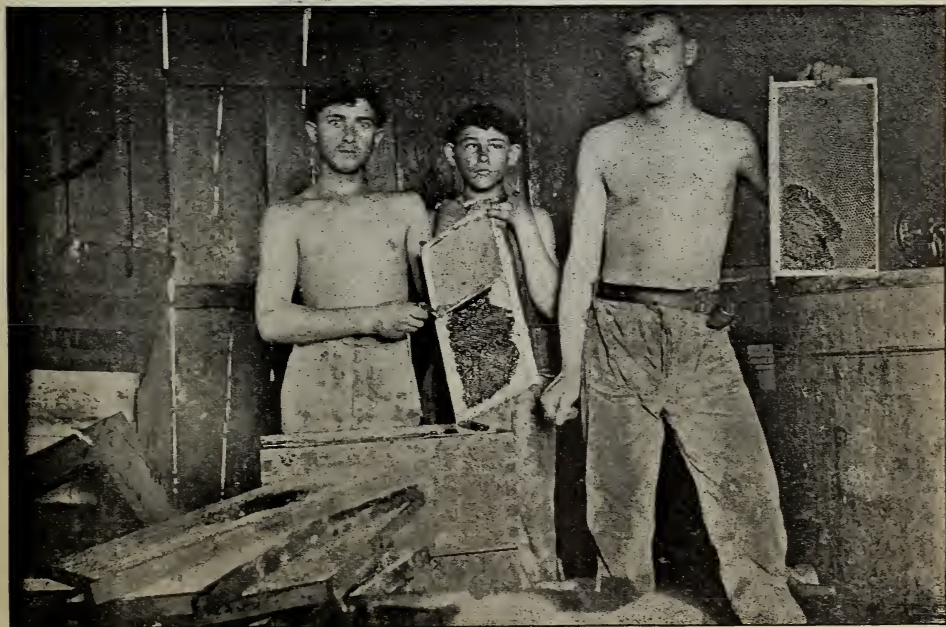
How long it takes each kind of honey to candy, is a question than can not be answered except in a very general way. Ordinary alfalfa will granulate first, and *might* turn from the liquid to the solid condition inside of sixty days, while clover and basswood might take six months, a year, or even more. As I have before said, candying or granulating of honey is not a *sure* proof of its purity. A certain percentage of glucose will delay the candying process in honey, but will not prevent it. Some years ago, for experimental purposes I prepared seven or eight glucosed samples of honey, the percentages of glucose varying all the way from 10 to 75, I think. After three or four years I found all the samples candied; but the degree of solidity varied according to the amount of glucose that had been put in it in the first place. I may say this, however, that glucosed honey will candy a little differently from pure honey; but just how differently I can not explain on paper.

How shall we detect glucose in honey, without chemical analysis? Largely by the taste. Call on your candy-maker and get a small quantity of commercial glucose. Taste



The old five-hundred-gallon caldron, all that is left of the old Osborn bee-yard. The first bee-yard of American hives in Cuba.

it a good many times. After a spoonful of it has been in the mouth for a few minutes (I can not say just how long) one can detect a sort of brassy taste that is quite characteristic. When one once *learns* to recognize this peculiar brassy "twang" of glucosé he will be able to detect it almost unerringly when the stuff is present in honey—at least I was able to do so, and so have others. For the purpose of experiment I had one of our men prepare some samples of glucosed honey for me to test. While I did



A CHARACTERISTIC EXTRACTING SCENE IN WESTERN CUBA.

not know the exact percentages I could point out which sample had a very small amount, which a large, and which a medium amount, by the *degree* of "twang" I could feel in the mouth just after having tasted it.

Another simple method, although I do not think it is reliable, is to pour a little alcohol in a suspected sample of adulterated honey. If, on stirring, it shows a pale cloudy white, there is probably glucose present. If it does not show this appearance it is not necessarily proof that the honey is pure, so the test works only one way. But even that one way, in connection with the taste test, might put one on his guard when buying honey. I will admit that there are some very highly refined glucoses that have no brassy twang; but they are high-priced, and probably would not be used as adulterants.

—Ed.]

grow one crop of tobacco. When the plants are big enough to be transplanted they are pulled and shipped on cars, mule-trains, and ox-carts, to where the tobacco is to be grown. Those tobacco-seed beds are, by the next season, covered by the vines of the *campanilla marada*, which springs up wherever the soil has been cultivated.

The extracting scene is a common sight in a honey-house in Western Cuba. One reason for their working this way is the construction of the honey-houses, which are low, with flat roofs covered with tarred paper. Those buildings at noonday under the tropical sun are like ovens.

It is also natural for a Cuban to work without a shirt, no matter what kind of work he is doing. When it gets a little warm, off comes that garment.

Coffee plantations are among the good lo-



AN AMERICAN BEE-YARD IN HAVANA PROVINCE, WIPED OUT BY FOUL BROOD.

CUBAN NOTES AND VIEWS.

The Best Places to Establish Apiaries.

BY LESLIE BURR.

If one believes what he generally hears about Cuba (from the man who has land for sale), it is one great garden, and every square foot is of the richest land. But the fact is, forty per cent of the land is worthless for agriculture. One of the parts of the island in which bee-keepers are very plentiful is the *Vuelta-Abajo*, Pinar del Rio Prov., which is the tobacco section of Cuba. Here is also found the greatest amount of the *campanilla marada* (the pink bellflower). The cause of this is the tobacco business, as tobacco seed is sown on virgin soil. Large tracts of land on both the mountains and the coast are cleared every year, just to

cations of Cuba. Coffee blooms three or four times during the season; and as it is grown in the mountainous parts of Cuba, and nearly all mountainous regions of the island are good bee locations, a yard situated on the edge of a coffee plantation is one of the ideal locations.

Foul brood is one of the things that thrive in Cuba. It exists from one end of the island to the other. The probable reason for there being so much of it at present is the light honey flow for the last two years.

Casanova, Cuba.

[The illustration of the white bellflower is a remarkably good one. The large areas of this vine afford a very pretty view, when in full bloom, especially to a bee-keeper. It is not unlike the morning-glory of the North.—Ed.]



DIAGNOSIS FROM THE OUTSIDE.

"Hello, Doolittle! I have come all the way from Missouri (by letter) to have a conversation with you about what we may know of the conditions existing inside of a hive without opening it."

"Very well, Mr. Wolfe. Is there any thing special that you have on your mind that you would like to talk about along that line?"

"The first thing I should like to know is, what may we conclude when we see bees bringing in much pollen at this time of the year?"

"That such a colony is in a prosperous condition."

"Excuse me; but what do you mean by a prosperous condition? I know what it means for a man or a family to be in a prosperous condition, and can guess what it would mean with the bees; but I would rather have you explain more fully."

"A colony that would be in a prosperous condition May 5th to 10th, in this locality, would be a colony having a good prolific queen with about 8000 to 10,000 bees, together with from 10 to 15 lbs. of honey, and from 4 to 6 L. frames of brood. Such a colony would be considered A No. 1 here, and would be carrying pollen and water at a rapid rate on every pleasant day at this time of the year. And if you were familiar with the inside of a bee-hive you would know that such was the condition of any colony you looked at that was thus working, even though the same was in a box hive or gum, where you could not get at them to inspect the inside of the hive; and an experienced apiarist can tell very closely what is inside each or any hive in any apiary by simply passing by the entrance of the colony or colonies."

"Thank you. And what may we conclude when a colony brings in little or no pollen?"

"If it is a colony having about the number of bees spoken of before, and little or no pollen is being gathered, while the bees seem listless about the entrance, then we may be almost sure that such a colony is queenless, or, at least, has no laying queen."

"Why do you add that last part?"

"Because colonies of bees sometimes lose their queen in early spring, when they have some little brood. And in such a case they will raise a queen from the brood left when the queen died. Any colony having eggs, small larvæ, sealed queen-cells, or a virgin queen, can not, properly speaking, be said to be queenless; and colonies in this condition are not given to a vigorous carrying of

pollen after the brood left by the dead queen is sealed over."

"Would you send for a queen where you had a colony which carried little or no pollen?"

"No; I would open that hive and see what was the matter, for they might have sealed queen-cells, or a young queen, which, in either case, would be likely to cause them to reject any queen you might try to give them—especially so if they had a young queen. But you may be deceived in regard to the strength of colonies. Some colonies when quite weak will have quite a number of bees stationed at the entrance to guard it from robber bees, especially if the race is of the Italian strain; and such colonies would appear to be carrying little pollen, when really they would be in a prosperous condition in all points except their fewness in numbers."

"How can we tell in regard to this matter from outside appearances?"

"By the way they treat the bees which come in laden with pollen, and from the loads they carry. Bees carrying pollen, where a colony is queenless, generally come in with light loads, and are rushed up to, when alighting, by the bees about the entrance; while those of a small colony having a good queen carry as large loads as any of the strongest prosperous colonies, and, when alighting, run into the hive without any ado as regards themselves or the bees about the entrance. I think I understand you here. Next I wish to know what it means when we see a lot of light-colored bees bobbing about the entrance. Are they young bees out for exercise?"

"If the time of day is from noon to about two o'clock, 999 times out of 1000 they will be young bees taking their first flight and marking their location. If at other parts of the day, I should suspect robber bees of the golden Italian race, for robber bees are often taken for young bees, and young bees for robber bees, by those not fully conversant with the workings of bees in front of the hive."

"Is there any way I can know for certain in this matter?"

"Yes. Catch any bee which you suppose may be a young bee or a robber, as the bee is coming out of the hive, and either kill it and dissect it, or gently press upon its abdomen. The robber bee will have honey in its honey-sac, while the young bee will not. It is easy to tell for certain in this way; and after you have found this out once, if you are a close observer as regards the actions and ways of the two in front of any hive, you can decide at once at any future time."

"Next I wish to know what it means when we see two bees hauling and pulling at a third until they fall off the alighting-board. Are they fighting or only fooling?"

"When bees are really fighting it may be known by dead bees being drawn out in front of the hive, and others all drawn up and dying from being stung; and in this real fighting it is very rare that more than one

bee clinches another. It is, 'sting as quick as possible.' I have known from a quart to a peck of bees to be killed in less than fifteen minutes when a real fight was on."

"Then you think what I have seen is only fooling?"

"If the bee the two were pulling at was one that had been hovering about the hive, hoping to sneak in and get a load of honey, being caught by the home bees when so doing, they pulled at it to tell it that, if the thing were insisted in, harsher methods would be used. In other words, the bee was being 'flogged' to keep it from trying to enter the hive for thieving purposes. But if you see this pulling being done when no bees are hovering about the entrance, as if trying to slip into the hive, and especially if the bee which is being pulled at is shiny, with a somewhat swollen abdomen, you may know that the colony has a touch of that disease known as 'bee paralysis;' and when such disease is well settled on any colony you will see scores of bees being thus hauled and pulled about, while the diseased ones will look as if the hair of down had been all scraped and pulled off from them."

"Will there be other bees that will be shaking, and down in the dirt in front of the hive, kicking their legs about (some nearly dead, and others being able to get up and then tumble down again), when the colony has this disease?"

"Yes. And there will be dead bees with swollen abdomens and shiny bodies down in front of the hive—at first, only a few; but as the disease increases, these dead bees will accumulate; and if the case is severe so the colony does not recover, the ground will be nearly covered with those dead and decaying bees, while the colony dwindles down to a mere handful and finally ceases to exist. But brood-rearing will be kept up remarkably and out of proportion to the number of bees in the colony as they grow weaker and less in numbers."

"That accounts for the actions of one of my colonies. I could not tell what ailed them. But I must be going now. I may come again with some more questions on the same subject."



DOES DRY WEATHER AFFECT THE COLOR OF SOME HONEY?

Does dry weather affect the color of honey? This question is given in Stray Straws, page 1099; and according to my experience I must answer this question by saying yes. The weather affects the color of all honey gathered in this locality except linden. This

honey is always water-white, whatever the season may be—hot and dry, or cool and wet. The weather has no effect on the color of this honey.

But clover honey, dandelion, and especially goldenrod honey, are always colored darker in a hot dry season than in a moderate or wet one.

As I read the above question in Stray Straws it reminds me of the season of 1895. That was a very poor honey year; and what little honey was gathered was of a very dark color. After the clover bloom was all gone in July or August (I do not remember exactly) we had some good showers. This brought up the goldenrods around the small lakes which are in reach of my bees; but by the time the goldenrods were in bloom the weather became hot and dry again, and the honey from this blossom was almost as dark as molasses, and tough and gummy as honey used to be after boiling an hour or two. I noticed this coloring of honey in several seasons, but not as badly as in 1895. The cause of this color I explain in the following way: I don't know whether I am correct in this or not. It is only what I believe about it. In a moderately good season the raw nectar in the flowers is more diluted with water, and the water repels the sun's rays in such a way that they have no power to burn and stain the honey. The nectar is carried to the hive by the bees, and the water is evaporated in the hive by the heat of both the sun and the bees, but without the reach of the sun's rays. In a dry and hot season there is not so much water contained in the nectar, and the rays of the sun reach the honey direct in the flower-cups, and burn and discolor it in the same way they do it with honey in a solar wax-extractor. Now, this nectar is taken to the hive and dried out by the heat of the bees. This double drying gives the honey the gum-like consistency that we find in honey gathered in a dry poor honey season. The fact that linden honey is never colored dark is because of the position of the flowers. The opening of these flowers is downward, and both the leaves of the tree and the flowers protect the nectar from the sun's rays.

I should like to hear reports from beekeepers in sections where raspberry bloom is plentiful as to whether they ever find raspberry honey colored by the action of the weather, for these flowers are in the same position as basswood-blossoms.

JOHN H. CLASSEN.

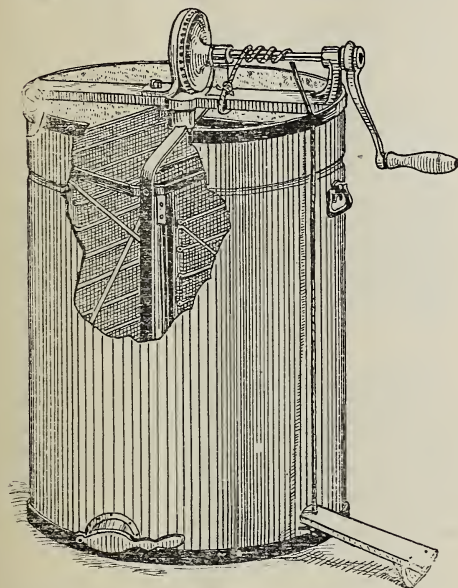
Manitowoc, Wis., Dec. 12.

[It is not entirely clear to me that the sun itself would affect the color of honey. Some substances it darkens and others it bleaches. I know this: That in a dry season we are more apt to have honey-dew than at other times. This article is generally dark, and a little of it mixed with white honey would tend to darken it. Over against this proposition is the fact that your basswood always remains light-colored. I give it up. Perhaps some correspondent can give us a

better solution. While we are about it, it might be well to raise the question whether or not a dry season does darken extracted honey of some kinds.—ED.]

BRAKE FOR AN EXTRACTOR, FOR FIVE CENTS.

Take a piece of $\frac{1}{2}$ -inch manila rope, six feet long. Tie one end to the arm of the extractor under the shaft; then wrap it four times around the shaft, winding from you or the same way you would turn in extracting. Bring the loose end down outside the ex-



tractor, and let it hang. In turning the machine hold the rope loosely with the left hand; when ready to stop, pull gently on the rope and see it stop—no jar, no jerk, no arm-twisting work. This is worth \$10.00 to any one with 100 colonies of bees in extracting. It can be worked by the foot by putting a board to the lower end.

Normanna, Tex., Jan. 4. C. A. BUTTS.

[We have given the above device a thorough test, and will say that the stopping is indeed accomplished without straining the arm, and without jerking or slamming the baskets. But it is quite important that at least half-inch rope be used, for the twisting strain is enormous, and any smaller size will be pulled apart like so much thread.

Of course, the shaft must always be turning in the direction in which the rope is wound, and even then it may be advisable to add a little resin or other gummy substance, to make the necessary amount of friction. Although this brake works nicely, it is somewhat a question in our mind whether it should be used. When the weight is on the treadle, and the rope begins to bind, there is a tendency to pull the shaft down toward the cross-bar. When the reel is

stopped quickly in this way, the shaft gives almost $\frac{1}{8}$ inch; and, although there will be no danger of bending, yet the wear on the bearings and gears will be increased considerably.—ED.]

CANDIED HONEY AS EMERGENCY RATION FOR SOLDIERS.

Not long ago I went to the table tired, and did not seem to relish any food; and knowing I needed more energy to finish my day's work I consumed some nice candied honey, which, every bee-keeper knows, supplied the necessary energy. And as the honey was filling me with energy and satisfaction, I thought of the emergency ration furnished our American soldiers, and wondered if candied honey were not of a higher value than the ration now furnished. The present ration is composed of chocolate and cane sugar; or plain chocolate candy put up in a sealed package and carried in the haversack for any emergency.

Now, you bee-keepers who have honey to sell can consume some of it and use the energy in deciding whether it will be profitable to interest the government. If not, I know it would be profitable to educate the ever hustling American people as to the value of honey as a food, and that, if bee-keepers would use lots of printers' ink, they would never need to worry as to the sale of honey, or figure from the (then) market quotation whether it is profitable to sell.

R. L. PENNELL.

Greeley, Col., March 26.

[Honey is a pre-digested sweet; and if chocolates or cane-sugar preparations are a strong food, as undoubtedly they are, honey should be equally good for the purpose, and yet be much more readily assimilated. We may yet hope that, in the Elysian days, civilization will have advanced far enough to know and recognize the greater digestibility of honey as compared with other sugars.—ED.]

A HIVE-COVER THAT WILL NOT BLOW OFF.

I have sent you two drawings illustrating what seems to me to be an ideal cover. You will readily see its good qualities. The bev-



eled edge underneath permits of its being "wedged on" the hive-body, so to speak, making it firm, and secure from blowing off in a wind-storm. HARRY W. CRAVEN.

Evanston, Ill., Feb. 21.

[Your form of cover would be very objectionable, in my opinion, in that, in damp weather, it would be wedged on the top of the hive so tightly it would have to be knocked off with a blow. Almost any tel-

escape cover will not blow off if the rim sticks on two inches, and allows $\frac{1}{2}$ inch of play all around.—ED.]

HOW TO GET DRONES FOR MATING QUEENS FROM BABY NUCLEI AT A SPECIAL MATING-YARD.

A valued correspondent desires to make some definite crosses with different races, and writes:

"What I want to ask you is this: How can I best manage the *drones* for the mating-ground? I shall endeavor, of course, to have the mating-ground immune so far as undesirable stock is concerned. I propose trying the "baby-nucleus" plan for the queens. Would it be *necessary* to take a whole colony of bees to the mating-ground in order to get the right drones, or could I trap out enough drones and unite them with the nucleus the day before, and feel reasonably certain that all would be well? You see the little nuclei are very easily handled in an ordinary buggy, but a colony is a different proposition.

In reply I should say, subject to emendations and additions of the editor, that there is no absolute necessity of having a full colony if drones are taken as proposed with the baby nuclei. They will be cherished by any nucleus until its queen is fertilized. Of course, in proportion as a smaller number of drones if taken with a nucleus will there be a greater chance for delay and possible failure.

A possible compromise suggests itself, providing the same kind of drones may be continued on each mating-ground: Take a three-frame nucleus of queenless bees, well stocked with drones, and keep it in heart by an occasional addition of fresh brood.

If, however, only one mating-ground is contemplated, with different drones on different days, then it will be better to take the chances with drones as part of the outfit of each nucleus taken. C. C. MILLER.

Marengo, Ill.

"GO WEST, YOUNG MAN;" A CHANCE FOR A HOME-SEEKER.

The interesting notice of a new bee-tamer, Feb. 5, in the Root family, and Pres. Roosevelt's good words on "home and family," combine to arouse my dormant soul to get up and speak out. Yesterday I found a bee-tree. Is that strange? Yes? Where I live is called the treeless, trackless, arid plains of the Rocky Mountain slope. I went three miles to the creek to get some fence-posts, and a little black bee licked the posts and started home. I followed, and found its nest in a large cottonwood-tree, 17 feet from the ground. There they are, slick-looking and wild. What shall I do with them? Let them alone and ask you to send me a gentle bee-tamer to teach me the science, and she shall have my interest (100 per cent) in bees, trees, choice claim on the finest of government lands, and all

the benefits that go with new countries and pioneer home-building; yes, and bring her best fellow with her. I am not a young romantic bachelor, as you may suspect. No false alarm would I give; but to the youth and the mature man or woman, the new West still offers as good opportunities for willing hands to become real home-builders as it ever did—not all the same conditions that once existed, but sufficient variety to enable energetic youth or middle-aged persons to become real home-owners, rather than join that hopeless class of hoboes who seek only the gauze of wordly pleasure, as they call a life without an object. Who will be the lucky one to come and claim the new bee-tree, the new homestead, and the greatest of American honor, a free home-owner? This great valley plain where each day the wild antelopes chase each other over the few new farms, and the prairie-dogs chatter in surprise to see the daring pioneer stir the native sod, is destined to be densely peopled and intensely cultivated; and here the honey-bee will gather wonderful stores from alfalfa, which, like Samson's lion, yields both "meat and sweet."

Byers, Col., Jan. 22.

J. I. BROWN.

A JUG FOR A BEE-FEEDER.

I hereby send description of a bee-feeder that I think beats all others. It is just a jug with a lip on one side of the bottom, turned up with the exit-hole just below the surface of the lip. All you have to do to fill it is to stop the hole with the finger and fill the jug and cork it tightly. I got a potter living here to make it. H. C. SIMPSON.

Catawba, S. C.

[Such a jug would make a very good bee-feeder, with the advantage that it would not rust, and would last indefinitely; but they could not be sold by the supply-houses, for the simple reason that heavy freight and breakage would make them out of the question. Tin or wood is about the only material that can be used.

Those who are not located near potteries could drill a hole through the bottom of any ordinary jug, then mold around the hole a lip made out of Portland cement.—ED.]

THE POPPY IN BOHEMIA; DOES IT YIELD HONEY?

In regard to the poppy, we have sometimes fields of it of 50 acres and more. The bees gather only pollen from it. It has no bad effect on bees. In Bohemia it is grown for the grain. It is used partly as food and partly to make oil; but we do not raise it to make opium of. R. STRIMPL.

Networitz, Bohemia.

RUBEROID FOR HIVE COVERS.

I notice in GLEANINGS, Mar. 1, Dr. Miller asked if any one has used ruberoid for hive-covers. I send two pieces that have been on hive-covers eight years, have never been painted, and, it will last eight more

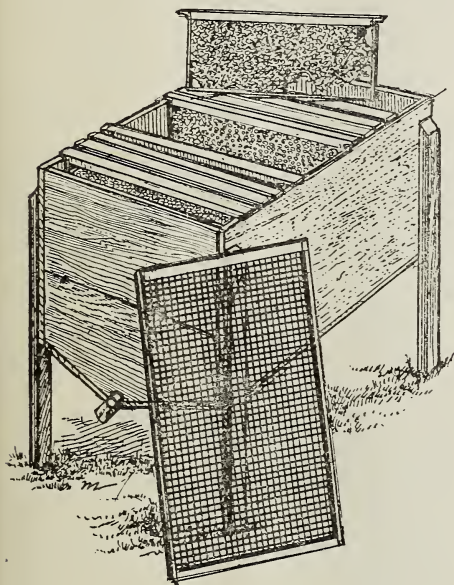
and not leak. I am using it on 150 new covers this spring, and my covers are flat. You can draw your own conclusions.

G. BRUNDAGE.

Salisbury Mills, N. Y., March 8.

HOME-MADE UNCAPPING-BOX.

I enclose a rough sketch of my uncapping-box. The box is made of $\frac{3}{4}$ -inch pine, 20 inches wide, and 30 inches long, by 20×24 inches deep. It is lined with galvanized iron, and has a strip of pine on one side to



wipe the knife off. The screen you see standing at the end goes in the inside, so that the caps can't drop on the bottom of the box. You see it is just the right height so you don't have to bend over while at work. The above works better than any thing else that I have seen.

Monroe, N. Y.

HARLEY SMITH.

[In California this is a very common form of uncapping-box. If the uncapper is at any time ahead of the man with the extractor it will hold the extra combs and still allow the former to keep right on. Either you or our artist failed to show the cross-board on which the combs are uncapped.

It would be better to set the combs in the box cornerwise so that they could be picked up more easily.—ED.]

THIEVES DESTROYED ALL THE HIVES.

In our town there are only fifty voters to each saloon, and the result is distress, poverty, and crime. I had a few colonies of bees, and one after another was taken by thieves who took all the honey after wrecking the hives. All my hives have been destroyed in this way.

I would like to keep bees again, but how

can I be protected from cold in winter and thieves in summer? I consulted GLEANINGS and your A B C, and find but little about house-apiaries. I have a fine location for bees, but can not keep them without winter and summer protection. Could the hives in a house-apiary be placed close against each other with their entrances on the same level? Would the bees mix and make confusion if the entrances were only the width of a hive apart? Can you help a fellow out?

E. VAN FRADENBURG.

Liberty, N. Y., March 2.

[One saloon to fifty voters! my, oh my! It is a wonder decent people can exist at all in such a place. No wonder your bees were stolen. Saloons are invariably the accompaniment of lawlessness. We hope you will have a local-option law in your State better than the one you have, whereby you can debar these nuisances out of your community. Then, and not until then, will you be able to keep bees in your yard in peace. At present your only solution of the question is a house-apiary. The hives outdoors should be placed inside, with a tube or channel way, connecting the entrance of the hive inside to the outside. Of course, it is desirable to keep the hives as far apart as possible. But I have been in house-apiaries where hives were crowded together in actual contact, and good crops of honey were secured.

The alighting-boards on the outside of the hives should be painted different colors, and each board should be differently constructed from the one next to it. A little ingenuity would devise quite a variety of alighting-places. Some of the entrances might have porticos and others only plain alighting-boards. One board might be narrow and the other wide.—ED.]

A NEW USE FOR BASSWOOD-TREES.

Basswood-blossoms dried in the shade and kept from the air are one of the best fever medicines for children (as any German doctor will tell you); and they are not so harmful in their effects as are quinine and gelsamine. I don't think you will find a single drugstore in Germany without a goodly supply of basswood-blossoms on hand; and it is a shame for the drugstores in this country not to have basswood-blossoms on hand. I think it would be healthier for all if they had more such good and simple herbs and teas in stock, and less patent medicine.

The only place I have found in this country where they keep basswood-blossoms is at Montgomery Ward & Co.'s in Chicago, and they have to import it. Don't you believe it would pay poor people to gather the flowers? There might be a little industry in it.

A. BAUMANN.

Marquand, Mo., March 31.

[Please accept our thanks, friend B., for calling our attention to this matter. If there is a demand for basswood-flowers, as you state, they certainly ought to be furnished in our own country. I find Montgom-

ery Ward & Co. list them at 35 cts. per lb., the dry blossoms. I asked our family doctor about it, and he said its principal value is for making an emulsion, something like that made from slippery elm. And this reminds me that, when I was a boy in my teens, I had a trouble with my eyes so that they swelled shut. After trying several things the doctor said we should scrape the pith out of some shoots of basswood and make an emulsion. This, when placed over my eyes as a poultice, very soon enabled me to open them. By all means, let us use roots, herbs, and blossoms in place of injurious drugs. We can rest assured that basswood-blossoms will never harm anybody, externally or internally, even if they do not do any good.—A. I. R.]

TAKING OFF SUPERS; BEES REFUSING TO STAY IN DANZENBAKER HIVES.

Being away from home last fall I left my supers on the hives, and, in fact, did not know they had to be taken off in the fall, and am not positive yet; if so, when should it be done in my case?

Can you tell why the bees would not stay in the Danzenbaker hive? I put in three different new swarms, and they left every time. Two of the swarms were very large. I never had trouble with the other hives. This may seem strange to you, but it is a fact. J. D. BARFIELD.

Metropolis, Ill., Feb. 12.

[There are some swarms that won't stay in any hive. In my own experience I have had some particular swarms that would immediately fly out of any hive where I placed them, even when I gave them a frame of unsealed brood. They were just bent on going off. In such cases it is advisable to shut them in the hive with wire cloth, and carry the hive down cellar and keep them there until they "cool off" or get over their mania to abscond. I do not think the hive in this case had any thing to do with it. In dozens of cases we have had our swarms stay in Danzenbaker hives as well as in any other hive. The case is probably an idiosyncrasy on the part of the swarm itself. It should be said, however, that an empty hive without combs, especially if no frame of brood be given, is not as liable to hold a swarm as a hive in which these essentials have been supplied.

The super should come off when the combs are sealed.—ED.]

LAYING WORKERS; WHAT IS TO BE DONE?

Last spring (May 29th) I hived a good swarm of bees in an eight-frame Dovetailed hive, Hoffman frames. They proved very poor workers. They had not gotten into the super by July first, and made hardly any surplus. At the end of the honey flow, or or at least by the first of October, they began to die off, and dwindled amazingly, long before cold weather came on. But they lasted through the winter, and on Feb. 21,

when I examined them, seemed to have plenty of stores; but I noticed that the queen eluded my search. March 25th I made a second examination, and was cheered by the sight of brood, sealed and unsealed, but no queen. The words "high convex cappings" caught my eye as I skimmed the pages of the A B C, and led me to read the article on "Laying Workers." To-day I made a more intelligent inspection. Although there was comparatively little drone comb in the hive, the bees were very sluggish; brood irregular, next to top-bar; eggs, two in a cell; larvæ apparently two in a cell; cappings very high, like big brown blisters. I guess that proves the case, does it not? Query, how long has it been queenless?

I do not like to lose that hive. Has any smart bee-keeper devised a way of meeting the difficulty since the A B C of 1900 was printed? Will it better the case to insert a frame of brood from another hive with a well-developed queen-cell? or would it be better now to use this hive, which has plenty of stores and is well stocked with worker comb, for building up a new colony by frames from other hives?

AUSTIN D. WOLFE.

Parkville, Mo., Mar. 29.

[The case is a very clear one of laying workers. Just how long the colony had been without a normal queen would be hard to say. Some strains will develop these pests when the colony has been queenless only a few days. In the case of Italians the hive may go a month or six weeks and still not have them, while Holy Lands might show them in ten days or less. It would be all right to give the frame of brood with queen-cell; in fact, the giving of a cell alone is very often effective in bringing about a cure.—ED.]

WATERY CAPPINGS.

Do the three-banded Italians always make thin watery cappings on their comb honey? Experienced bee-keepers tell me they almost always do, but that the goldens do not, but cap it white. As I produce comb honey I want it white, as my customers do not like water-faced honey.

W. I. GREENOUGH.

Mechanicsburg, O., Feb. 20.

[As a general rule, black bees make a whiter capping to their honey than the average Italians, but the difference is only slight. There are very few strains of Italians that will make a water-soaked transparent capping to honey.

I know the claim has been made that five-banders make a white capping. I do not know why they should make any whiter face than the average Italians, because they are only a strain of that blood. Some extra-yellow stock that we had made cappings so thin and transparent that we killed off the queens, fearing that their drones might mate with some of our choice queens and cause trouble with our customers. On the

other hand, I have seen some strains of five-banders that produce a white capping, but no whiter than was made by most Italians.—ED.]

HOW MUCH HONEY PER COLONY?

There are a good many fruit-trees in my locality, and also a good many locust-trees, lots of white clover, and also peavine clover. I don't suppose there are over 50 colonies of bees within a two-mile circle. In a good season how much surplus honey should I get from a fair-sized colony in an eight-frame Dovetailed hive? Did you ever have any bees drown in the Doolittle division-board feeder? I have lost over a pint from one colony this fall. I got scared and quit feeding.

J. H. STENGER.

Whitcomb, Ind., Jan. 30.

[This is a hard question, as so much depends upon the management and the season. I should say, on an average anywhere from 25 to 75 lbs. of comb honey, and a third more of extracted.

We have had some complaint of bees dying in Doolittle feeders; but if directions are followed there will be no trouble. The remedy is to use a float, *i. e.*, a stick long enough and narrow enough to slip in the feeder. Perhaps you did not receive the directions.—ED.]

GIVE THE CONSUMER THE HONEY THAT HE IS USED TO.

In looking over your issue of the 15th inst. my eye caught the title "The Prevalence of the Belief in the Comb-honey Lie." I now wish to endorse the remedy that Mr. Bender offers as being the most effective (in my judgment) of any that can be brought against the prevalence of derogatory stories concerning honey and its production.

The concluding sentence of Mr. Bender's communication reads, "After all, our best argument is a chunk of fine honey." I would add this qualification: "Yes! if the chunk of honey is the kind that the person's taste has been educated to; for the secret of satisfying any one with honey lies largely in this fact, that the kind of honey which he will pronounce to be pure must possess the taste that he has been accustomed to find in honey. The man who has eaten honey produced in Northern Illinois all his life, given a piece of the finest honey produced in Colorado would be very likely to pronounce the Colorado honey manufactured stuff providing he had heard of such a thing as being possible; yet no one method is sufficient for all emergencies, and it is well to explain error when occasion offers."

Chicago, Ill., Mar. 21. R. A. BURNETT.

[Mr. Burnett is to a great extent right. A good deal of the foundation of the comb-honey lies is due to ignorance in regard to the various flavors of honey; but if it had not been for the comb-honey lie in the first place, and for the continued cropping-out of a new version of the same story, the general

public would never have questioned the purity or genuineness of honey in the comb, and would be ready to accept any flavor without any hesitation. So after all it is the newspaper stories that are responsible for the distrust in any comb honey that does not taste like the product consumers have been used to.—ED.]

IS IT BEE-PARALYSIS?

In one of my colonies a dozen or more bees are carried out each day that are so bloated as almost to resemble a queen. They are not dead when carried out, but live and struggle for even 48 hours, and occasionally recover enough to re-enter the hive. They do not resemble the paralytic bees, so often described, by getting black, but, on the contrary, look like perfectly healthy bees, full of honey, and chilled so they can move but slightly. They tremble every now and then, and draw up as if suffering from colic. Their tongue is invariably extended its full length. It is the only one in my apiary of 200 colonies that is unhealthy. Can you tell me what it is?

H. S. PHILBROOK.

Oxnard, Cal., Jan. 6.

[The symptoms you report describe very closely bee paralysis. In stages of this disease the bees are not black and shiny. If it is of long standing you will, after a while, see the black fellows showing all the other symptoms you describe. Better destroy the colony or isolate it from the other bees, especially in a warm climate like yours. Bee paralysis is not particularly dangerous or destructive in a cold climate, but is often very destructive, and much harder to cure, than black or foul brood in a climate where the bees can fly almost every day in the year.—ED.]

BEE'S DISAPPEARING MYSTERIOUSLY IN NOVEMBER.

A peculiar thing, to us at least, happened to some of our bees. A neighbor had a large nice colony of bees. The middle of November he went to place them in his cellar for winter, and every living bee was gone. He knew they were good and strong a week before, with no dead bees about the hive, while now there were only about 15 bees clustered in one corner, and all dead. No queen was to be found. They had left about 60 pounds of nice honey. Another neighbor, with seven colonies, lost three the same way. They were working nicely just a few days before. Four different men tell the same story, having had similar experiences about the same time in the neighborhood. Now, what happened to these bees? What became of these swarms? Why did they leave or disappear so mysteriously? They did not go into neighboring hives, for the first one mentioned was the only colony on the farm, and no other bees nearer than five miles.

These men came to me for the solution, and I gave up, having handled bees for

years; but nothing like this ever happened. To you old bee-keepers this may be no mystery. Can you tell us? S. R. FERGUSON.
Sumner, Ia., Feb. 22.

[I am unable to account for this peculiar trouble. It may be some sort of disease with which we are not yet familiar. If the other colonies were affected, I should lay it to poison administered by some enemy of the owner of the bees. Sometimes a snake will cause a whole colony to vacate because it can crawl into the hive.—ED.]

HOFFMAN AND STAPLE-SPACED FRAMES.

On p. 298 Mr. Phillips enters into a detailed defense of the Hoffman frame. I have used that frame two years, and will cut off the spacers and substitute either staples or nails driven in the top-bar half an inch from the shoulder. The trouble that I come in contact with is that I kill many bees that would be saved by the use of the staple or nail spaced frame; and here in Central Kansas the bees carry in quite a quantity of propolis, and almost fill up the space on each side of the V, making it next to impossible to separate the frames, especially if the weather is cool, in which case the propolis is hardened to such an extent that the spacers will split off instead of separating, as they no doubt do in the warm climate of Jamaica, where propolis very seldom if ever becomes hard.

Aside from the spacer, I very much like the Hoffman frame. In the matter of frames crowding together in the absence of spacers, in case the hive is to be moved, I fully concur with Mr. Phillips; but if a nail or staple be driven into the top-bar it answers the purpose of the V on the sides of the end-bar, and will seldom kill any bees.

Mr. Phillips states that a little smoke at the right place will drive the bees out of the way of the spacers, which is probably true; but by the use of the staple spacer this trouble is avoided, and in my apiary it would be quite troublesome to use smoke when I have all the frames of a hive separated, in looking for a queen or queen-cells, or when I go to put back the frames after extracting the honey. I was personally acquainted with Mr. Langstroth, who invented the movable comb; and in talking with him regarding the best and most satisfactory frame for all purposes and all localities he stated that the least possible space of contact in the matter of frames touching each other or the walls of the hive he had found to be the best. When I began the use of the Hoffman frame I tried to think it superior to any other; but my experience has compelled me to fall back upon the Langstroth, as above given.

G. BOHRER.

Lyons, Kan., April 1.

STARTERS FOR WIRED BROOD-FRAMES.

If I use only starters can I wire the brood-frames the same as if I intended to use full sheets, and have the bees build the combs

over them by a little watching to make them build them straight?

What color are the red-clover bees? I ordered two of an advertiser in GLEANINGS, and they were nearly if not quite as black as my hybrids. W. P. HAIGHT.

Nora Springs, Ia., Feb. 3.

[You can wire your brood-frames and use only starters of foundation. Bees will build over the wires so as to make good perfect combs.

The red-clover bees are what are ordinarily called three-banded yellow Italians. The bands are a dark yellow, not a bright—more like the regular imported stock. The black red-clover bees you refer to may have come from untested mothers, the progeny favoring very strongly the drones with which the queens were mated.—ED.]

COMBS BUILT TOGETHER; HOW TO SEPARATE.

I should like to ask now to manipulate frames whose combs are built from one frame to the other. I am going to clip the queen's wings, but can not get out the frames. JOHN BRANDT.

Erskine, Minn., Feb. 25.

[Where combs are built together as described, the only way to do is to blow smoke down between the combs pretty liberally, then with a long-bladed knife, preferably dipped in hot water, cut through the fastenings until the frames are clear and separate.—ED.]

A VENTILATING - FRAME FOR USE BETWEEN HIVE-BODY AND BOTTOM-BOARD, FOR CELLAR WINTERING.

For wintering bees in cellar I have a frame the size of a hive, about $3\frac{1}{2}$ inches wide, that will fit the bottom-board tight. On the lengthwise sides there is a piece cut out which is covered with screen so as to give them all the air they want; when ready to take into the cellar I just lift them on the frame with bottom-board under. I have no trouble with bees coming out, and no dead bees on the floor. H. B. HANSON.

Christian, N. D., Feb. 2.

[This would make a very good arrangement; and I am not sure but it would pay every bee-keeper who winters in the cellar to provide such ventilating-rims, which he can put in between the hive and the bottom-board. The entrances should then all be closed, confining any bees that may die to the bottom.—ED.]

HIVES SET ON SLACKED LIME.

The best way to keep ants away from the hives is to set them on half a bushel of air-slacked lime spread around on the ground. That also keeps weeds down.

NICK SCHNETTLER.

Valders, Wis., Mar. 7.



And whoso shall receive one such little child in my name receiveth me.—MATT. 18:5.

While, no doubt, we all inherit evil tendencies more or less, I feel sure that we start out on the voyage of life with a tendency toward truth and honesty. Children, as a rule, are innocent. Their natural bent is toward uprightness and unselfishness. While environment might not have all to do with it, it is certainly a very large factor in making a child turn out good or bad. Children should be isolated from evil associates. I would not shut them up and overdo the matter, but they should be fortified and drilled to look out for evil—to love righteousness and hate iniquity. Many a child has gone to the bad because of its bad surroundings; and all workers in mission and other reform work know that a child that is started wrongly may be rescued and turned back. It is also true that, after a child has been well started in wisdom's ways, some sudden change in its life, say the loss of father or mother, may so expose it to evil influences that the good start is lost, or drowned out, we might say. After I have told my little story that is to be the principal part of this Home talk I shall have something more to say on this subject.

Our train was passing through the pine woods of Northern Michigan. It slowed up at a little station called Merritt, between Manistee and Baldwin. I was reading something, and hardly noticed a freckled-faced boy who passed through the car with a tin pail in his hand. After he had gone by I roused up and turned, and began to look at him. I try to notice the small boys, wherever I am. He said something to the passengers in the back part of the car that I could not understand, so I rose up and called: "What is it you have to sell, my young friend?"

He looked up shyly, and a faint smile came over his freckled face as he said slowly, with a low voice, "Wintergreen berries."

I repeated the words so loudly that every one in the car heard. I did it because I caught on to the fact at once that he had passed through the car without getting anybody to notice him or his berries, mainly because he was too bashful to make himself heard.*

"Why, bless your heart, child, what beau-

* It is a trade to sell berries—yes, even wintergreen berries. For that matter it is a trade to know how to get this busy world to notice what we have to sell, even if it is something that everybody would be glad to get if he knew of it. The little incident reminded me of something I read in one of our agricultural papers. I do not know that I have got it just right. It is something like this:

He who whispers down a well
About the things he has to sell
Will never make the shining dollars
Like him who climbs a tree, and hollers.

tiful large berries these are! Haven't you sold any?"

He shook his head as he looked up in my face wistfully.

"How much for a cupful?"

"Five cents," he answered with that quiet low voice of his.

"Why, that is cheap. Here—I want two cupfuls. These are my favorite fruit."

The passengers began to wake up and smile, and gathered around us. Most of them had never seen wintergreen berries, and did not know they were good to eat. Dear readers, I suppose most of you know that I have served an apprenticeship in selling berries. One Saturday night several years ago our strawberry-pickers told me they had been all over town and sold every berry that could be sold at any price, and yet there were something like fifteen or twenty bushels left that would not keep until Monday morning. I laughingly told them I would have to give them a lesson in selling goods, and I sold the whole lot standing right in front of our store. Of course, there were a good many people passing by on their way home, and when it became dark I lit a lamp. I sold all at a fair price. After I got the town waked up, two or three people came with pans and pails after I had sold out.

Well, I felt sorry for the boy because he had had such poor luck, and in a few minutes I made him happy, and I think every passenger in the car was happy also, judging by their looks, with their beautiful and luscious berries. After they were gone, and somebody wanted more, this young friend of mine (oh! he *was* my friend, you may be sure) beckoned to another freckled-faced boy outdoors, and he came in with his pailful. He had been through another car, but with little success evidently. If the car had not started while we were busy with our traffic, I think the second pail would have been emptied also. As I helped the boys to get off the car I said jokingly, "Wouldn't you like to have me go with you and pick berries? And just think what a lot you could sell if you had *me* along!"

Their faces brightened up so much at the suggestion that I actually meditated getting off and going berrying until the next train; but I found I would have to wait five hours, and I could not well spare the time. Let us now go back a little.

When I told my little friend I would take two cupfuls I gave him a quarter, and he gave me back four nickels. I was so busy eating the berries that I did not think of it till he was pouring them into his little bags for somebody else. Then I said, "Why, look here, my son, you have cheated yourself. Now, suppose I had not been an honest man, but had kept still and kept that nickel that belongs to you."

He looked up with his soft blue eyes, and said, "Oh! I wouldn't mind. I could pick another cupful in just a few minutes."

The passengers began to laugh at this, and then a lady said, "Why, dear me! he

served me in the same way. I gave him a dime and he gave me back two nickels, and the berries besides." Then a gentleman in the back of the car looked over his change and said the boy had given *him* a nickel too much. I can readily understand how this came about. The boy was discouraged when he went through the car, and nobody noticed him or his berries. When I took hold as I did and emptied his pail he was a little excited because he was afraid the car might start. And then, too, it was a little embarrassing having so many all around him all at once with his unexpected good fortune. I noticed his hands trembled in his efforts to open his paper bags, and so I opened them for him while he poured out the berries. Besides, he trusted to the honesty of the good men and women who were gathered about him; and he was a rather small boy for so much business all in a rush. Last of all, he had not been through this hard cold business world, and been taught to look out for No. 1, by its hard knocks.

My good friends, there is a worldful of freckled-faced boys just like this one. They have not yet learned to be greedy, and to "want the whole earth," as the expression goes. Some of the small boys in our cities have been taught selfishness, even at an early age; but the boys in the country—that is, out in the woods—are, many of them, as yet as God made them. I am sure he told the truth when he said it would not matter if I had taken the two cupfuls for the nickel. The berries are very plentiful in many of those woods in Northern Michigan; and I kept thinking of those two boys all day, and regretting that I could not go with them to the woods to pick berries, and then stand between them and the busy world and help them *sell* the fruit. Then I wondered if there was any church or Sunday-school around that little settlement called Merritt. Are there some good people there trying to *keep* those boys' hearts pure and unselfish? When I read in the papers of the way in which our great men who are occupying important places are, one after another, being found guilty of accepting bribes, or planning to put money in their own pockets instead of saving that which belongs to the people (who voted to intrust our public funds to their care and honesty) then I wonder again if these boys that now seem so honest and unselfish are going to get into the whirlpool after all, where all, or at least many of them, seem to be giving life and health and strength toward catching at straws; for the wealth of this world is indeed straws compared to spiritual gains. Jesus asked, "What shall it profit a man if he shall gain the whole world and lose his own soul?" No, I am not calling *everybody* greedy and dishonest. I know there are good men and good women, scores of them. May God be praised there are so many! and yet it saddens me to think that these freckled-faced boys may in time be trained so far away from childhood and childish promptings that they may become

only greedy tyrants. May God help us to look after these little ones, and protect them! May he give us more heart and zeal in keeping up Sunday-schools, prayer-meetings, and places of worship.

The next verse after the one I have chosen for my text says, "But whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depth of the sea." Now, just think of it, friends. Arrayed against the Sunday-schools and churches are the saloons that are scattered through almost every little town in Northern Michigan. These saloon-keepers would get every boy away from the Sunday-schools if they could, for a Sunday-school is opposed to a saloon, and *vice versa*. They would teach this young boy whom I have held up before you to-day to drink and swear, and to use improper language. They would deliberately place vile pictures before those innocent, confiding blue eyes. They would fill his childish heart with poison—a poison that kills both body and soul.

At the close of the bee-keepers' convention at Central Lake I was asked to give a talk in one of the churches. When I said I should like particularly to speak to the men and boys, the ministers of the town with whom I had become acquainted assured me that I would get only women, or mostly women, to come out during an evening on week days; but I felt so anxious to have a little talk with the men and boys that I proposed inviting the business men. I did so, and quite a few came out. I had planned, also, to invite the boys; but when almost every boy I met had a cigar or cigarette in his mouth, courage failed. I said to the ministers, "Surely the voting men of this beautiful town would banish the saloons if they had a fair chance and a fair vote." The pastors sadly shook their heads. They said the men who ran the mills were pretty nearly all patrons of the saloons, and they would be pretty sure to outnumber the church and temperance people. The farmers, God bless them! and most of the business men of the town, were in favor of temperance. Those who worked in the saw-mills and lumber-camps are as a rule a drinking set, and they rule the town in politics and morals. May be it is almost a hopeless task to try to banish these evils among men; but what about the boys who have not yet started on the downward track? May God help that little band of W. C. T. U. women at Central Lake, and in every other place of like surroundings, to "be not weary in well doing," holding fast to God's promise that "in due time we *shall* reap if we faint not."

LONG-RANGE WEATHER-FORECASTS.

Perhaps some of the friends may think I am having a good deal to say in regard to Hicks and his weather almanac; but I firmly believe it is the duty of every periodical

that circulates among the farming community to keep protesting until people learn better than to waste their money on the "St. Louis astrologer" or any other fortune-teller. Just now there seems to be a concerted action on the part of the agricultural papers to make a general protest against this false science and false teaching. See the following, from that excellent home paper "our own" *Ohio Farmer*:

Mr. Herrick says that Hicks' forecasts are "based on prevailing astronomical conditions," etc. But all who have any real knowledge of astronomy and meteorology know that the fixed stars have absolutely no discernible influence upon our world's weather conditions; that the planets of our own system have only an influence which, as compared to that of the sun, is infinitesimal and absolutely inappreciable, while that of the moon, which, from its vastly closer proximity to our earth, causes ocean tides and their variations of "spring" and "neap," depending upon "conjunction" or "opposition," really has so exceedingly little effect upon weather conditions that no long-time forecasts of any real value can be based upon the moon's phases. All our great astronomers and meteorologists know that the above general statement is true.

These long-range forecasts are a "snare and a delusion," an unmitigated humbug, a hindrance and a damage to every farmer who gives them any credence or any attention! They have no scientific basis. Comparisons with the actual recorded facts prove that they are guesses which occasionally hit but usually miss. *Let them alone.* Study the short-time forecasts of our United States Weather Bureau. They cost us, the people, more than a million dollars each year. They rest on a solid basis of science and an accurate daily knowledge of the direction and velocity of storms or climatic currents, the reports being more frequent when violent conditions require. The forecasts are true 80 times out of each 100, the inaccuracies being due to unexpected changes in direction and velocity of currents between the widespread telegraphic reports. But *let the weather charlatans severely alone.*



LETTUCE UNDER GLASS WARMED BY EXHAUST STEAM.

I met one of my "happy surprises" at Fremont, Mich., while making a call on our veteran bee-keeper G. E. Hilton. Friend H. did not accompany me to the convention, for the good reason that I found him and his home, including his family, up in the air. They were not up in a flying-machine or a balloon; but his house was raised up on blocks and machinery in order to move it over to the other side of the dooryard; and while the gang of men were at work on the aforesaid job a storm of rain and snow hindered them so it was convention time the very day the home was to be located, plumbed, and leveled. In fact, they were in such a predicament they could hardly open and shut the doors. Notwithstanding, I had an exceedingly pleasant visit with friend Hilton and his model little family. But the happy surprise I have mentioned in the opening was in the form of a new glass structure expressly for growing Grand Rapids lettuce, built just about a year ago. I did not get the dimensions, but it must have covered between one-fourth and half

an acre of ground; and it was not only filled with as nice lettuce as I ever looked on, but the whole plant has been run so far with exhaust steam on the very plan I have urged so often on these pages. The steam comes from the waterworks and electric-light plant of the town of Fremont. One of the enterprising owners has worked a great part of his life at plumbing, especially for warming greenhouses; and by his skill and experience he has successfully overcome all obstacles in the way of using exhaust or waste steam. They pay the city \$300 a year for taking the exhaust steam out of their way; and they do it in such a way that it not only takes no power from the engine in back pressure, but, on the contrary, by the use of some kind of pump they keep a partial vacuum in the heating-pipes so the steam rushes over there of its own accord; and the greenhouse really helps the engine instead of taking off any of its power by back pressure. I do not know the particulars, or whether the device is patented; and I am unable to say whether pumping out the drip water is all that is necessary to produce this vacuum or not; but at any rate the apparatus worked beautifully. They even go so far as to have a thermostat that automatically keeps the temperature at the right point in the greenhouse, without any manipulation on the part of the owners.

They are selling their lettuce in Cincinnati. Just think of sending several hundred miles, away up in Michigan, for the lettuce needed in comparatively mild Cincinnati. Just now they are putting in cucumbers where the lettuce is taken off, and I never saw a ranker, healthier growth of cucumbers, outdoors or anywhere else. Of course, they need a higher temperature for cucumbers. To make a rotation they also grow radishes. When I remarked that most of the radishes I had grown in the greenhouse ran up to tops which I was compelled to sell for greens, the proprietor laughed and asked me what time of year I tried to grow them. When I said December and January he told me to try it next time in March and April, with plenty of daylight, long days, and short nights. He said I could then grow radishes with good bottoms and small tops.

Like Eugene Davis, they have one or two houses with translucent glass—the wavy glass that subdues the fierce sunlight in the summer. He said he preferred the wavy glass were it not for the difficulty of laying it so as to make tight joints. This glass, on account of the uneven surface, can not be cut accurately like the clear window glass. There was not a green fly—at least I could not discover any—on the whole plantation. The crop was so remarkably even, and free from sports, that I was curious to know where they got the seed. He said it came from D. M. Ferry, of Detroit. He added that they had tried seed from a great variety of sources, but Ferry's had seemed to be the truest. They propose to grow either cucumbers, lettuce, or radishes every day in the year, thus having no idle or waste

time with a plant that cost so much money. Their only fertilizer is stable manure. Their soil is a black loam that I believe they bring a mile or so from out of town. Every florist or lettuce-grower should hunt up the very best soil for his crop, and he can well afford to go a mile or more after it rather than use any thing inferior. Insect enemies are kept down by burning in little stoves, located at different points in the houses, a mixture of tobacco stems and tobacco dust. I do not know but tobacco is destined to fill an important place in commerce; but we want to be sure it is injurious insects that we use it on instead of killing off our boys with it, and it is the worst kind of killing, please bear in mind, friends, for it kills physically, mentally, and spiritually. God help us in protecting our boys.

THE CONVENTION AT CENTRAL LAKE.

During the two days and one evening, almost every thing pertaining to bee-keeping was discussed. I shall touch on only a few brief points brought out that have not already been gone over so much in our columns.

In answer to the question, "Why use a dummy in eight-frame hives when none is needed in a ten-frame hive?" the most of the bee-keepers said they did not use a dummy at all; but beginners, when they are learning to handle frames, find it convenient to have a dummy to remove in order that they may have less trouble in getting out the first comb, especially where using the Hoffman frame.

Nearly everybody at the convention used wired frames; and there was a general agreement that the wires should not be drawn too tightly. If they are drawn up taut the sheet of foundation will almost always bulge or buckle, because it extends downward a little when the bees work it out; therefore the wires should be just a little loose in order to have perfectly flat combs without any bulging.

There was much discussion in regard to the time for putting bees into the cellar in the fall and removing them in the spring; and it seems to me to be a good deal a matter of locality, season, and other circumstances. One bee-keeper mentioned a case where a part of his bees were left in their winter quarters until after the rest had been gathering early pollen and some honey for several days. Those that were taken out last got behind and never caught up. Mrs. Morrow and several others present winter outdoors in chaff hives. Friend Hilton also advocates and practices outdoor wintering in the Hilton chaff hive. It takes more honey, no doubt; but the bees are always ready to catch the early pollen, and are not likely to suffer, even if a cold snap comes afterward. Others who practice cellar or cave wintering claim they not only save their bees from loss, but save from 5 to 10 lbs. in stores. Walter Harmer, of Manistee, has wintered 60 or 70 colonies in a cellar during the past

winter that were almost destitute of stores; and he has been feeding them all along liquid food with the well-known pepper-box feeder. This was considered a little remarkable, because there seems to have been an idea that we can not feed liquid food in the cellar. Mr. Harmer's method of making the syrup is to fill any dish with granulated sugar up to a certain point. Make a mark with a pencil or something else just where this point is; then pour in boiling water until the water rises to the same point. This gives the right consistency. I visited his cellar and looked over his bees, and was satisfied he made a success with it.

There was quite a discussion in regard to wax-extractors. In the *Bee-keepers' Review* for April an apparatus is figured and described which seemed to be about what most of them use. The principle is about the same as that of our German wax-press. The home-made machine costs less money. Mr. Harris, who used to be located in St. Louis, Mich., renders his wax with a pair of "squeezers." This is the same thing, on a larger scale, that my mother used to use for getting out lard and tallow on butchering day. It gets all the wax as well as any thing, probably; but where there is much to be rendered, most bee-keepers prefer the press.

Several recommended melting up the combs whenever they get to be thick and heavy, especially if they contain much drone comb. The wax that has accumulated during several years of use will furnish foundation for a brand-new set of nice combs, and enough to pay for your trouble besides. Soak your old combs for 24 hours in warm water. This softens the cocoons from the old brood-combs and soaks them so full of water that they do not take up and hold melted wax, thus assisting considerably in squeezing out the nice yellow wax.

One bee-keeper reported quite a lot of honey from radishes. These radishes were grown by the acre to supply a large seed-house with seed. The honey had an unmistakable flavor of radish.

The president, Mr. Kirkpatrick, produced and sold last year 5000 lbs. of honey which sold in gallon cans at \$1.20 per gallon. His poor dark honey he sold to the baker to make honey-jumbles. His poor honey brought him only 6½ cts. per lb. He said he thought it better to sell at that price, and get it out of the way, than to take any chances in having it spoil his reputation for first-class table honey.

There was not much discussion on foul brood, from the encouraging fact that it is practically stamped out through all that northern region, many thanks to Foul-brood Inspector W. Z. Hutchinson and to Bro. Rankin, who commenced the work before him. From reports made, I am now satisfied that foul brood can be stamped out at comparatively little expense if you have a competent inspector. The disease is a disgrace and a shame to the whole United States; and every State should lend a hand in driving it off from the face of the earth.

Somebody asked through the question-box, "Is there danger from in-and-in breeding with the bees if the apiarist neglects to get new queens and new blood from somewhere else occasionally?" I took the ground that bees could not well suffer in this way so long as the queens and drones meet in the open air. Others argued to the contrary; and finally somebody called on a bee-keeper present, I think it was J. W. Isaman, but I may be mistaken. After some little urging, this man gave his experience. He kept bees for fourteen years without getting any new strain of blood or any queens from anybody. He just kept the same stock right along. As his locality is good he had fair success. But somebody suggested sending to the Root Co. for an Italian queen, and carefully note the yield from her bees compared with the others. He finally sent for an untested dollar queen; and after some trouble in introducing because of delay in getting the queen he got her to laying all right. The very first season, this queen gave him 300 lbs. of honey, while his general average was but little more than 100. This certainly looked as if it paid to introduce fresh blood from somewhere else. Mr. Isaman was honest enough, however, to admit that he watched that colony, and perhaps gave it more care than any of the others. The above incident rather turned the laugh on me. When I got up I said something as follows:

"Now, friends, I do not want you to rush to the conclusion that *all* the queens we sell for a dollar will give results like those just mentioned. I suppose that you are aware that I introduced, years ago, the custom of selling queens for an even dollar, without testing, and without any guarantee. There had been so much disappointment in sending for high-priced queens that I suggested every man should do his own testing. The breeder should breed from the very best strains he can procure, either in Italy or in America. Then he should sell his young queens as soon as they commence to lay, at the uniform price of one dollar, letting the producer do his own testing; and I still believe this is about as good a way as any to get the best strains of bees. Do your own testing and you will have no complaint to make. At first there was a big tirade against cheap queens as there is against cheap stock of any sort; but a few years began to demonstrate that the untested queens were about as good as any. For one thing, if the breeder is an honest man you are sure of getting a *young* queen; and a young queen is always worth more than an old one, other things being equal.

It was my privilege to stay over night at the home of Mrs. Morrow, a mile and a half out of the town of Central Lake. Mrs. M. has between fifty and sixty colonies of bees, but as her husband and not one of the family of children take to bees, she manages them entirely herself. She has secured good crops of honey, and, strange to tell, her honey never candies. It is stored in

sap-pails with a cloth tied over the top; and on a frosty morning you can turn the pail of honey upside down and not spill a drop, it is so thick, and yet it is just as clear as glass. For quality it suited me so well I took a bottle of it home to show our Medina folks what good thick honey is like. The only explanation she could give for the fact that her honey does not candy, while the raspberry honey of that region is celebrated for candying solid as soon as cold weather comes is that her extracting is all done late in the fall. She just piles the hives up one story on top of another, so as to give the bees room. When extracting time comes, the combs are taken into a warm room, and kept there long enough to get well warmed through. The room is kept at a pretty high temperature where the extracting is done, because the honey is so thick it is a pretty hard matter to throw it out. Of course, there are other bee-keepers, many of them, working on this plan. The honey is better ripened, a good deal, than the average comb honey, especially comb honey that is taken from the hive before it is soiled by the bees tramping over it. And I for one do not want any more comb honey so long as I can get Mrs. Morrow's extracted. I have submitted my sample to a good many people since then, and they pretty much all agree with me. The honey is so thick it is difficult to get it out of the bottle without warming or letting it stand in a warm room. Of course, such thick honey ought to bring more money than the ordinary liquid honey on the market; but I for one would be willing to pay for it. Mrs. Morrow has now just about sold out. She has been getting 8 cts. per lb. at retail, but I think it certainly ought to be 10. Honey that is so well ripened that you can turn over a dishful at ordinary temperatures without spilling it ought to bring two or three cents a pound extra. There is, perhaps, a little objection to taking off the whole crop of the season at once. You will have your raspberry, clover, and perhaps honey from other sources, all run together; that is, it would be rather impracticable to keep it separate. But I should say, let it go all together so we have it thick enough to "cut with a knife," as the saying is. Of course, thin honey can be evaporated by artificial means, setting a pan of it in an oven for instance, not letting it get too warm. But I think the bees can do the ripening better and perhaps cheaper than we can.

GROWING WINTERGREENS AND WINTERGREEN BERRIES.

The incident mentioned in *Our Homes* has given me a new hobby. I brought home a lot of those wintergreen berries, and they are already planted in my greenhouse. Some I mashed to get out the seeds, and some I planted whole. I am going to try hard to make them grow; and if there is any bee-keeper in Northern Michigan or anywhere

else who can send me some wintergreens with the roots nicely packed, I will gladly pay him for his time and trouble. I presume it is going to be a little difficult to grow wintergreens under cultivation; but I opine it is no more difficult than many of the plants we have already grown in the greenhouse that require shade, a particular soil, special modes of watering, etc. A wintergreen-plant in a pot, loaded with berries, would be as handsome in the way of ornament as almost any thing in the greenhouse. It is an evergreen; the blossoms are very pretty, and the berries hang on the plants almost the year round, if I am not mistaken. Some of the berries I got of that boy were very large; and if you will look at them closely you will find them very handsome, not unlike a navel orange, but, of course, of a deeper red.* Under cultivation I believe we may be able to grow them larger still; and, besides the beauty of the foliage, flowers, and fruit, they are delicious food. The same plant is also called partridge berry, because partridges largely subsist on them; and I admire the good sense and taste of the partridges. I ate one cupful, and enjoyed them very much before it occurred to me I had better take some of them home to plant.

Now, if anybody has ever succeeded in growing wintergreens under cultivation, that is the person I wish to get hold of. I have planted my berries in a mixture of jadoo and sand. Wintergreens usually grow in a sandy soil where it is rather damp, and the largest plants and berries are usually found where there is decayed wood or a large amount of humus in the soil. At the time the berries are usually gathered in the spring the young wintergreen sprouts are shooting forth. When small they have a beautiful crimson tint that makes them about as handsome as an achyranthus. And, by the way, whenever you want to go picnicking, always choose some spot where wintergreens are thick—that is, if there is any such near you. Why, it makes me young again to think of it.

Now, who will tell us something more about the wintergreen? When I was traveling in Cuba, California, and some other places, sometimes an inquisitive Yankee would want to know what my business was. My usual answer was that I was looking up *God's gifts*; and this wintergreen-plant is one of his gifts that just now makes me happy to talk about, think about, or read about. Who will get ahead of me in getting some plants to grow under cultivation?

WARMING POULTRY-HOUSES FOR GETTING EGGS IN WINTER.

Of course, this is not a poultry journal, and may be I shall put my foot in it if I

* I have recently noticed in one of the dailies that a small boy in Northern Michigan, who has a widowed mother, sold over \$50 worth of wintergreen berries during the past season. He and his brothers and sisters picked, then he took them to a nearby city and disposed of them.

undertake to teach poultry people; but as I am going to make only a suggestion I think our poultry people will excuse me. When I arose at friend Morrow's a little after daylight, as I usually do, there was nobody stirring, and there was no fire in any of the stoves. Mrs. Morrow laughingly told me I would have to go down to the barn to get warm until the fires were lighted. That was a novel idea to me, that a barn would be warmer than a house. This, of course, aroused my Yankee curiosity; but when her good husband came along with a milk-pail and asked me to follow him I soon solved the mystery. They not only grow beautiful *honey* on the Morrow farm, but they have the *milk* to go with it. One of the first things that struck my eye on coming on to the place was a handsome big barn with a basement laid up with stone in a substantial manner. Inside of this spacious basement I found thirty or forty head of cattle and horses; and the basement was so snug that the temperature of the whole large room was quite comfortable on that cold frosty morning. In fact, I saw beautiful potatoes in open bins that had been there all winter long—no freezing at all, so all they needed was protection from the light. With the right kind of stable, thick heavy walls, perhaps partly under ground at the back side, the animal heat generated by the live stock keeps out the cold. Then I suggested that the south side should be a little larger so as to accommodate a good flock of poultry, fencing them off with netting. Of course, it might make the stable a little colder to heat this addition; but as the fowls themselves furnish considerable warmth I do not think the difference in temperature would be appreciable; and where one keeps a lot of cattle and horses it seems to me it would not be an expensive way of keeping bid-dies comfortably warm. As it is, Mrs. Morrow has sold over \$50 worth of eggs since January 1; and she has a 200-egg incubator in operation; and what a nice place it is to work in in winter time, especially when you have zero weather and storms outside! No wonder the cattle looked sleek, comfortable, and happy. I do not believe the Morrow children, with such a home and comfortable surroundings, will be in a hurry to get away from the farm and off into the town.

SUNDAY DAILIES, MUSHROOM-GROWING, ETC.

The biggest lies are always found in the Sunday dailies. May be you think I am using rather strong language. I do not think I would ever read a Sunday daily at all were it not for the pages that are submitted to me to inquire whether statements are true, etc. The one before me now is taken from the *St. Louis Post-Dispatch* of April 16. One full page is devoted to the mushroom industry. The heading is as follows:

\$50 A DAY GROWING MUSHROOMS IN ST. LOUIS.

The Remarkable Profits to be Made in this Curious New

Industry.—Hotels, Clubs, and Restaurants which Buy All They can Get at 50 Cents per Pound.—How any Person can Grow Mushrooms in his Cellar or Back Yard.—Profitable occupation for Ladies, Clerks, or Old Men.—A Steady Demand Far in Excess of the Supply.—Crops that Come up in the Night.

I will extract only two paragraphs from the article. They are fair samples of the whole:

Victor Pinet, "the Rockefeller of the mushroom industry in St. Louis," cleared a small place in Uhrig's cave recently, and set out a mushroom-bed. Then he sat in his easy-chair, and in three months cut \$3000 worth of mushrooms from the bed he had planted. Monsieur Pinet is an unskilled laborer. He might, if he had good luck, have earned \$45 a month during the three months he spent cutting \$50 worth a day of fungi from his mushroom-bed.

One waiter studied chemistry, and, finding that the ammonia in manure was the means of growing mushrooms quickly, simply bought five cents' worth of ammonia, mixed it with water, and grew \$5 worth of mushrooms over night.

Their authority for announcing to the city of St. Louis and the rest of the world in general that you can always get 50 cts. per lb. for all you can grow comes from a steward in one of the St. Louis hotels; but, if I mistake not, one of our agricultural papers has recently informed us that mushrooms are at the present time only a drug in the market in most of our large northern cities, and that growers find it a hard matter to get enough for them to pay cost.

Now, I do not like to find fault; but if you want reliable information do not expect to find it in a Sunday daily. The people who get up and sell Sunday papers have, as a natural consequence, less conscience than those who try to "remember the sabbath day to keep it holy."

Before closing I want to say something pleasant about mushroom-growing. While in our Medina greenhouse a few days ago I happened to look into the bin where the owners keep their compost (old rotted stable manure) for mixing with potting soil. It was full of mushrooms in all stages, from little bits of ones not larger than a pinhead up to those large enough to use; in fact, they had been using them on the table for some time. The spores that produced these mushrooms had formed a kind of network all through the compost. The strangest part of it is, they had never procured any mushroom spawn nor ever tried to grow mushrooms in their greenhouse at all. No doubt there is a good opening for the mushroom industry; but you will have to learn the trade, and you will probably also learn that the market may be at times overstocked the same as it is with every other commodity; and I think you will find that, instead of "sitting in an easy-chair" and raking in the dollars, you will have to get up and dust, about as much as if you were growing strawberries or any other crop.

DUFFY'S WHISKY — LOOK OUT FOR YOUR FRIENDS AND RELATIVES.

At Muncie, Indiana, there are four quite elderly people. The Duffy folks found out

about it, and hired a photographer to go there and get their pictures in a group. He told them they were wanted for the accommodation of a number of their friends. Then the Duffy folks manufactured a letter (attaching the signatures) reading thus:

We have used Duffy's pure malt whisky, and feel it has lengthened our lives. It has imparted new strength and vigor into our time-worn bodies, and we can truthfully say that, by the use of it as a medicine, we have been able to live together as a family to a ripe old age. Our ages range from 83 to 96 years. By its use we hope to have our lives prolonged, and recommend this excellent whisky to all who wish a stimulant of sterling quality.

MRS. MARY EILER,
PETER MUTCH,
MRS. CATHERINE MUTCH,
MRS. MARGARET ÖVINGER.

Muncie, Ind., Jan. 20.

Besides these pictures and the above letter they had a lot of advertising about how their whisky prolonged the lives of old people. I hardly need tell you that these old people had never used Duffy's whisky nor any other kind, and never heard of it. When the photographer gave them some bottles of it they supposed it was some kind of liniment (they were rheumatic), and never used it for any other purpose. As soon as these honest old people heard of it, of course they were highly indignant. In a similar instance, after the man they were using in their advertisement was dead his daughter had so many inquiries about the way in which this whisky had prolonged his life that she got the pastor of their church to help her answer the letters, telling the inquirers it was a fraud—that her father had never used Duffy's whisky at all. They got hold of his photo by some hook or crook, and wrote a letter, adding his signature after he was dead. As the government will do nothing, and as the lawyers say the whisky people can not be arrested for this business as long as they do not get money by the attached names, we are pretty nearly helpless by law. Now, if this is true shall we not all make a vigorous protest by declining to subscribe for papers that accept the advertising of Duffy's whisky? How many will help in exposing and putting down this outrageous work on honest and innocent people?

The particulars in regard to the above come from the *New Voice*.

THE MAN WHO ADVERTISES SO BIG ABOUT SELLING FARM PROPERTY.

The *Rural New-Yorker* has something further to say in this matter (see page 435, last issue). A large number of farmers have responded. Some of the letters are published. They wind up by saying:

It would be interesting to know if he has made any sales of property. We should be glad to publish them. Some of the letters intimate that he makes no effort to sell, depending entirely upon the advance fee for his profits. This we do not state as a fact. We do not know that it is so. It would seem that his facilities are good for making sales. We don't see how he could fail to do so with any thing like an honest effort, because of his extensive advertising. But does he make sales? That is one of the questions people want to know.

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